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Intersectoral Financial Flows in Developing Countries

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The business sector in developing countries relies on external funding for about half of its investment. If the availability of investable funds is to be freed from its dependence on the vagaries of the international capital markets, developing country financial systems will have to attract more household savings with new types of instruments and adequate returns.

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World Development Report

A review of flow of funds data for 17 developing countries reveals that most years in most countries:

- The household sector is a net lender, lending on average 7 percent of GNP — and more in countries that are more open and have higher income. The household sector typically saves more than twice what it needs to finance its accumulation of real assets, lending the rest to other sectors.

- The business sector is a net borrower, borrowing on average 7 percent of GNP. About half of real capital formation by business is externally financed.

- The government sector is sometimes a net lender but more often a net borrower.

Intersectoral flows in developing countries are achieved mostly through the banking system. The rest of the financial system is typically relatively underdeveloped. Thus savings are channeled from the household to the business sector much more by means of bank deposits and loans than through issue of equities.

The foreign sector cannot be relied upon as a passive or residual provider of funds to the domestic economy. A shortfall in foreign financing or an increase in government borrowing typically force the business sector to reduce its investment. Households and the government typically do little to absorb foreign financing shocks by adjusting their net lending.

The vulnerability of the business sector to the availability of foreign funds points up the need for the financial sector in developing countries to find more ways to attract domestic savings to finance worthwhile investment projects. This will require that savers are ensured a fair share of the returns on investment projects — which means realistic interest rates for savers and the development of financial instruments that allow savers to share in high-risk high-yield projects.

This is a background paper for the 1989 World Development Report. Copies are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Wilai Pitayatonakarn, room N9-005, extension 60353.

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INTERSECTORAL FINANCIAL FLOWS IN DEVELOPING COUNTRIES

1 INTRODUCTION

This paper is about financial flows in developing countries. It reviews the evidence on who are the borrowers, who the lenders. It asks questions such as: to what extent is the financing of business investment dependent on the availability of foreign funds? Does the degree to which households accumulate financial assets vary according to the state of development of the economy or according to availability of foreign sources of finance? What kinds of assets characterize financial intermediation?

Quantitative information exists on these matters for many developing countries, though the coverage is uneven, and much remains unknown. The present exercise is an attempt to draw on information from some of the best documented countries.

Apart from collecting and summarising available data from some seventeen countries the paper presents the results of an econometric analysis of the interactions between the net lending behavior of the different sectors. The main conclusions of this analysis are as follows:

- The business sector, though it finances a substantial proportion of its own investment needs from savings, also relies heavily on external financing. This reliance varies widely, but a typical figure would be 50 per cent of investment. The household sector is a net supplier of funds.

- Intersectoral financial flows in developing countries are achieved to a notable extent through the banking system. The remainder of the financial system is typically relatively underdeveloped. To the extent that the domestic financial system is not able to intermediate funds with

sufficient efficiency to ensure that worthwhile investment projects are financed out of domestic savings, the economy must look to foreign sources of financing.

- In a world of perfectly functioning international capital markets such sources would be readily forthcoming. But our analysis suggests that the foreign sector does not smoothly provide needed financing. A more realistic description would be to say that foreign sector financing is determined by factors other than domestic net financing needs. Furthermore, a shortfall in foreign finance, or an increase in government borrowing, typically forces the business sector to reduce its investment. On average, households and the government do little to absorb external financing shocks by adjusting their net lending.

- The vulnerability of the business sector to the availability of external funds points to the need for improvements in the effectiveness with which the financial sector in developing countries can attract domestic savings in order to finance worthwhile investment projects. This will require that savers are assured of a fair share of the returns to investment projects. This in turn requires realistic interest rates for savers as well as the development of instruments which can allow savers to share in high-risk high-yield projects.

The paper is organized as follows. Section 2 clarifies some terms and in particular explains what a complete set of flow of funds accounts looks like. Some of the serious data pitfalls which exist are noted.

Section 3 provides an analytical framework for the consideration of flow of funds data. (The reader who is mainly interested in the quantitative findings may proceed directly to Section 4.) Some theoretical propositions concerning the interaction between the savings and surpluses of different

sectors in an idealized economy are reviewed (in Section 3.2). The obstacles to an efficient intersectoral flow of funds may be traced to shortcomings in the development of certain financial markets and instruments. Some of these shortcomings, such as those resulting from interest rate controls, have been widely discussed. Others, familiar from the modern theory of finance, have not been so much discussed in the developing country context though they will become increasingly relevant as developing country financial systems become more sophisticated. It is these points which are discussed in Section 3.3.

Section 4 reports the main data on sectoral surpluses and deficits and summarizes the empirical findings on their mutual interaction and on their determinants.

Section 5 describes the typical pattern in developing countries of financial flows by instrument.

Section 6 is a summary and conclusion.

2 FLOW OF FUNDS DATA

2.1 The elements of the flow of funds.

The 1968 United Nations System of National Accounts (SNA)[1] provides a statistical framework for presenting flow of funds accounts. The two main accounts of the SNA that are relevant for our purpose are together referred to as flow of funds accounts. The capital accumulation account shows, for each sector, the saving of that sector including provision for capital consumption (or depreciation), any capital transfers to the sector, together with the non-financial assets accumulated by the sector, whether through capital formation, land acquisition and purchase of intangible assets. A balancing item of this account is net lending, the breakdown of which is the subject of the other account, namely the capital finance account.

For only a handful of developing countries are data for these two accounts collected. Even where data exist, they are generally incomplete in certain respects. An exception is Korea, which has detailed statistics presented, generally speaking, in the SNA format and going back a number of years.

Tables 1, 2 and 3 display the Korean flow of funds data for 1984, together with the corresponding stocks. A review of this data set will serve to illustrate many of the characteristics of the flow of funds found in diverse countries, as well as allowing us to fix some conceptual ideas.

Table 1, the capital accumulation account, represents the transition between the national income accounts concepts of savings and capital formation, and the financial accounts concept of net surplus or net

1 United Nations, 1968, A System of National Accounts, (Department of Economic and Social Affairs, Statistical Office of the United Nations, New York), Studies in Methods, Series F, No. 2. A revised methodology for the SNA is in preparation.

TABLE 1: KOREA, CAPITAL ACCUMULATION ACCOUNT, 1984

Billions of won	Households		Business		Government		Financial Institutions	
	Accum.	Finance	Accum.	Finance	Accum.	Finance	Accum.	Finance
Saving (net)		7237.0		1800.0		4539.0		474.4
Consumption of fixed capital		896.4		4890.4		143.7		139.7
Capital transfers (net)		122.5		143.3		-390.2		124.4
Gross fixed capital formation	4562.9		12657.8		3179.8		394.5	
Increase in stocks	139.0		273.3					
Purchases of land*	-1010.6		872.9		-16.2		153.9	
Purchases of intangible assets*	-81.8		60.4		0.3		21.1	
Net Lending	4646.4		-7030.7		1128.6		169.0	

Source: Bank of Korea, Financial Statements Analysis, 1985.

TABLE 2: KOREA, CAPITAL FINANCE ACCOUNT, 1984

Billions of won	Households		Business		Government		Financial Institutions	
	Assets	Liabs	Assets	Liabs	Assets	Liabs	Assets	Liabs
Net Lending		4285.7		-7533.1		1147.5		272.7
Gold							0.2	
Currency and transferable deposits	42.8		-14.7		461.9		675.6	1165.7
Other deposits	2895.6		2591.7		486.7		885.3	6859.4
Life insurance reserves**	1804.8							1804.8
Short-term securities	162.5		-410.8	90.4	9.3		1427.9	1098.5
Long-term securities	839.7		463.3	1440.6	66.1	-116.5	901.8	946.8
Stocks	887.4		584.1	1575.6	19.2		340.0	255.0
Loans by financial institutions		3133.5		7171.0		104.2	12413.3	2004.5
Government loans		17.4		-8.7	313.5			304.8
Equities other than stocks	730.8		10.7	872.0	210.4		-0.2	79.6
Trade credit		1327.6	2648.1	1320.4				
Foreign exchange holdings							596.2	
Foreign claims and debts	1400.8		-171.2	-607.4		505.9	82.5	2436.4
Miscellaneous			471.3	1851.7	139.5	65.5	785.5	879.8

Source: Bank of Korea, Financial Statements Analysis, 1985.

*(net)
**(and pension funds); Net equity of households.

Note: GNP=69400 billion won

lending[2]. In broad terms, the excess of each sector's gross savings (inclusive of capital consumption provisions) over its gross capital formation (inclusive of stock accumulation), will approximate its accumulation of financial claims on other sectors - shown as net lending. Adjustments must however be made for capital transfers, and for purchases and sales of land and intangible assets.

An example of capital transfers would be a government grant for the purpose of capital accumulation. Net capital transfers to a sector allow it to augment the resources provided by savings to increase the sector's acquisition of real or financial assets. However, this item tends to be relatively small[3].

Purchases and sales of land do not enter into the current income and outlay account. But land is not capital either. A particular sector may, however, use some of its savings to acquire land instead of capital or financial assets. Conversely, the sale of land by a sector augments the funds available to it for the purchase of capital or of financial assets. Of course appreciation in the capital value of a given piece of land is invisible to these accounts which are flow accounts[4].

"Intangible assets" refers to such things as patent rights which are neither capital nor financial assets.

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2 The term "net lending" will be used interchangeably with the term "(net) financial surplus".

3 Most, though not all, transfers from abroad tend to be current rather than capital in nature.

4 Over time the more valuable land may yield a higher rental income; this flow will appear in the accounts.

The Korean statistics display several features which are typical of many other countries. First, the individuals or household[5] sector is the largest domestic saving sector, in this case with gross saving totalling 8133 billion won[6], or over 12% of GNP. To this is added 122 of capital transfers (evidently from the government) giving 8256 to be allocated to the acquisition of assets. In this particular year the household sector sold land and intangible assets in the net amount of 1092, which further augmented to 9348 the funds available for this sector's investment in capital and financial assets. The household sector's accumulation of real capital, at 4702, is well below this, leaving a financial surplus (of 4646, or 7% of GNP) to be lent to other sectors.

The pattern for the corporations or business sector (which here includes both public-owned and private enterprises) is the opposite to that of the individual sector. While its capital consumption provisions are sufficient to cover almost two-fifths of gross capital formation, remaining savings fall well short of covering the business sector's remaining needs for investment, and the sector has a net accumulation of indebtedness of 7031, or 10.6% of GNP.

As will become evident, the net position of the government sector varies widely: in Korea in 1984 the general government ran a surplus, not only on current account (positive net savings) but overall, with capital formation falling short of savings allowing net accumulation of financial assets in the amount of 1129 or 1.7% of GNP.

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5 The practice is to include unincorporated business with the household sector, while corporate and quasi-corporate enterprises are included in the business sector. It is not always possible, however to adhere strictly to these categories.

6 The unit will be omitted for the remainder of the section.

The savings and capital formation of the financial sector is comparatively small: its role is as an intermediary and it therefore plays a bigger part in Table 2. The foreign sector is a residual: its net lending will equal the sum of that of remaining sectors. Naturally, the gross saving and capital formation of the rest of the world is not recorded in the national statistics of any one country; only the rest of the world's dealings with the country in question are included.

Table 2, the capital finance account, shows the financial assets and liabilities which were accumulated in the year by each sector. In principle these should sum to the net lending total for the sector shown in Table 1, but in practice there is a discrepancy resulting from the deficiencies of the different sources of data on which the two tables are based. While Table 1 is drawn primarily from information in the income outlay accounts, Table 2 is typically based on balance sheets and asset market transactions.

Consulting the columns for the household sector, the accumulation of financial assets corresponding to the net lending position of this sector is evident from the assets column. The sector acquired bank deposits alone in an amount equivalent to 4.5% of GNP. Its accumulation of claims on the funds of life assurance companies and pension schemes was only somewhat smaller, and there was considerable acquisition of long term securities and stocks, and other equity claims. But what is noteworthy is that the net surplus of the sector conceals considerable heterogeneity of behavior. Thus the household sector also borrowed appreciable sums from financial institutions as can be seen from the liabilities column. There was also an accumulation of indebtedness in trade credit. It is thus important to bear in mind that even a single entity may at the same time accumulate financial assets and liabilities, and this applies a fortiori to a large sector. The

household sector does not issue securities or equity; but the corporate sector does, and there are correspondingly fewer blanks in the columns relating to the corporate sector.

Once again it emerges that the business sector both borrows from and lends to (places deposits with) the financial sector. But the story is even more complex than with the household sector, as the entities in the business sector acquire claims on other entities in the business sector. For instance about one-half of trade credit is issued within the business sector.

The relevance of the financial sector becomes evident in this Table 2, as it has entries on both sides of almost all the rows: only those rows which relate by definition to claims of or on other sectors or to gold have blanks under the financial sector. The gross acquisition of financial claims by the financial sector is equivalent to over 27% of GNP - some 66 times its net lending, and this pattern is not untypical.

2.2 Financial assets

Continuing our perusal of the Korean data, we turn to Table 3 showing stocks of financial assets and liabilities. The total value of outstanding financial assets recorded comes to 264,500 billion won of which 38,100 are held by the rest of the world. The total of financial assets held by residents is thus 226,400 or over 325% of GNP. But this figure involves an element of double-counting including, as it does, both bank deposits and the claims of banks on their borrowers. For many purposes, it is

TABLE 3: KOREA: FINANCIAL ASSETS AND LIABILITIES BY SECTOR
end-1984

Trillions of won	Total	Household		Business		Government		Financial		Rest of World	
		Assets	Liabs	Assets	Liabs	Assets	Liabs	Assets	Liabs	Assets	Liabs
Gold	0.0							0.0			0.0
Currency and transferable deposits	10.2	3.2		2.8		1.5		2.6	10.2		
Other deposits	32.9	20.8		8.1		1.4		2.5	32.9		
Life insurance and pension funds	7.3	7.3							7.3		
Short-term securities	8.7	1.8		1.8	4.2	0.0		5.0	4.5		
Long-term securities	16.9	4.9		1.3	7.9	0.4	0.3	10.3	8.7		
Stocks	12.5	7.3		2.8	10.3	0.4		2.0	2.1		
Loans by financial institutions	70.6		18.0		39.4		3.6	70.6	9.5		
Government loans	6.3		0.5		3.3	6.3			2.5		
Equities other than stocks	10.6	3.4		1.8	8.7	4.7		0.7	1.9		
Trade credit	18.2		3.4	18.2	14.8						
Foreign exchange holdings	6.3							6.3			6.3
Foreign claims and debts	41.8			2.4	11.4		7.2	1.3	19.5	38.1	3.7
Miscellaneous	22.4	3.7		11.3	14.4	1.6	1.2	5.9	6.9		
Net financial position		30.6		-63.8		3.9		1.3		28.0	
Total	264.5	52.5	21.9	50.7	114.4	16.2	12.3	107.1	105.8	38.1	10.0
Percentage of GNP (GNP= 69.4):											
Gold	0.0							0.0			0.0
Currency and transferable deposits	14.6	4.7		4.1		2.1		3.8	14.6		
Other deposits	47.4	30.0		11.7		2.0		3.6	47.4		
Life insurance and pension funds	10.5	10.5							10.5		
Short-term securities	12.5	2.6		2.7	6.1	0.0		7.2	6.4		
Long-term securities	24.4	7.1		1.9	11.4	0.6	0.5	14.8	12.6		
Stocks	18.0	10.5		4.1	14.9	0.5		2.9	3.1		
Loans by financial institutions	101.8		26.0		56.8		5.2	101.8	13.7		
Government loans	9.0		0.7		4.8	9.0			3.6		
Equities other than stocks	15.3	5.0		2.6	12.5	6.8		0.9	2.8		
Trade credit	26.2		4.9	26.2	21.3						
Foreign exchange holdings	9.1							9.1			9.1
Foreign claims and debts	60.2			3.5	16.5		10.3	1.8	28.1	54.9	5.3
Miscellaneous	32.4	5.3		16.3	20.8	2.3	1.7	8.5	9.9		
Net financial posn		44.1		-91.9		5.6		1.8		40.4	
Total	381.4	75.7	31.6	73.1	165.0	23.3	17.7	154.4	152.6	54.9	14.4

Source: Bank of Korea, Financial Statements Analysis, 1985

preferable to net out such multi-layered claims[7]. Netting out the domestic assets of financial intermediaries, we arrive at a smaller figure of 146,400 or about 210% of GNP.

The assets figures, unusually detailed in Korea, allow us to observe the detailed pattern of intersectoral claims and liabilities at a moment in time.

The biggest single liability for the business sector is loans from financial institutions, accounting for over one-third of that sector's gross financial liabilities. Securities, short and long term, account for only about 13% of gross liabilities, with stocks and other equities estimated at 16.6%. The business sector also holds financial assets, totalling almost 45% of the value of its financial liabilities. To some extent this reflects a borrowing and lending between different enterprises - as with trade credit, which represents over one third of the business sector's financial assets. To some extent it reflects simultaneous holdings of financial assets and liabilities by individual enterprises, as when an enterprise issues equities or securities, but also holds liquid

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7 Nevertheless it may be useful for some purposes to include both sides of the balance sheet, and thus to use the larger figure. This point may be worth elaborating. Consider a very simple economy with just three agents, a mining company, a wealthy family and a conglomerate. The mining company has issued 200 worth of debentures, one half of which are held by each of the other two. In addition the conglomerate is partly owned by the family, whose shareholding is worth 95. The total value of financial assets in this economy will generally be accepted as 295. Now consider another economy, differing only in that instead of a conglomerate there is a bank, and instead of the shareholding there is a deposit of 95. Some might be inclined to treat the bank as a transparent intermediary, and count only 195 of financial assets. But after all the economy is financially more complex than one in which the family simply lent 195 directly to the mining company. The gross figure of 295 has as much claim to being a measure of the value of total financial assets as the lower figure. In fact, it becomes clear from this discussion, that any measure of total value of financial assets is a very imperfect summary of the size of the financial system. Financial intermediaries do more than channel funds from one agent to another, on the way they transform the characteristics of the assets involved. The asset obtained by the depositor is very different to that which he would have obtained by lending directly to the bank's borrower.

assets such as bank deposits. More than one-fifth of business sector financial assets are in the form of money and time deposits. This highlights the important asset transformation function of the financial sector.

For the household sector over four-fifths of indebtedness is to financial institutions, while almost one-half of financial claims are on financial institutions. Overall, household financial assets are almost two and a half times household financial liabilities. Nevertheless these liabilities themselves are not negligible, being equivalent to almost one-third of GNP.

The financial institutions are primarily intermediaries, their net financial position coming to little over one per cent of their gross financial assets. Of the identified financial assets held by domestic non-financial sectors, almost two-thirds are intermediated through the financial institutions.

The principal domestic financial claims of the government sector arise from loans made to the business and corporate sector, its principal domestic borrowings are from financial institutions.

There is a broad correspondence between the instrument structure of the asset holdings (Table 3) and that of the flow figures (Table 2), though this need not always be the case. The remainder of the paper is concerned only with flow figures.

2.3 Data pitfalls

Various practical difficulties mean that the reliability of flow of funds statistics lags behind that of the national income and expenditure accounts. Furthermore, though the methodology for preparing flow of funds accounts in the United Nations (SNA) is a widely accepted standard, it is

not rigorously followed by all researchers. These considerations imply that one must, especially when comparing data from different sources, be aware that there may be rather wide divergences between the data presented and the concepts they purport to measure. It is our impression that data problems are more serious in flow of funds data than in most other macroeconomic data sets, but we believe that it is worthwhile to examine the existing data.

One of the most common conceptual problems relates to capital value changes. Many elements in the flow of funds are derived from comparison of successive balance sheets of financial institutions. To the extent that the differences between these balance sheets reflect not only flows in and out of the institution, but also capital value changes, the year-to-year changes should not be entered as net flows without adjustment for the capital value changes. In principle, the valuation changes should be shown separately in a reconciliation account. However, it is not clear that such corrections have been made systematically in the data sources which we have used.

The second major problem - actually a variant of the first - relates to the problem of inflation. Even where inflation is fully anticipated, contracts denominated in money terms involve a transfer of real resources between the parties over time that is concealed by money accounting. Some authors have recommended that analysis of sectoral savings and financial surpluses should be carried out in inflation adjusted terms. When this is done, the patterns can change dramatically[8]. For example, the savings of the

8 Cf. Kennedy, N.O., "Inflation-adjusted sectoral saving and financial balances", Bank of England Quarterly Bulletin, May 1988.

household sector, as a net holder of money-denominated assets, tends to be lower in inflation-adjusted data. The data analyzed in this paper are based on money and not on inflation-adjusted accounting.

A third major difficulty derives from the existence of discrepancies between the sectoral income and outlay accounts and the financial data sources on which the flow of funds tables are based. These discrepancies have already been noted in the case of Korea, but they exist in all countries, and are often very large, by comparison with the sector surpluses. The treatment of these discrepancies can strongly influence the data.

The fourth problem, which is pervasive, is comprehensiveness. For the most part, the balance sheets of financial institutions and the records of organized securities markets provide the basis for much of the capital finance accounts of the flow of funds. The equity injections by owners of closely-held or quasi-corporate enterprises may often fail to be captured in the accounts, as may much of trade credit. Intra-sectoral claims are frequently netted out or omitted, and omissions are not evident because they do not violate adding-up constraints.

In the present paper, no attempt has been made to refine the flow of funds estimates prepared by other authors. Reliance is thus being implicitly placed on an assumption that the discrepancies and errors in the data are sufficiently random and non-systematic to allow the true systematic features to emerge from the statistical analysis.

3 ANALYTICAL ISSUES

3.1 Sectors and instruments

As illustrated by the elements of the flow of funds tables, there are two principal ways of approaching the analysis of financial flows and their determinants. The first takes the economic sectors as the main focus, the second looks at the different financial instruments. Each approach has its merits from the point of view of achieving an understanding of how the financial system works

On the one hand, an important function of the financial system is to channel resources from surplus to deficit units in the economy in an efficient manner. The sectoral approach addresses this issue[9]. Some theoretical propositions concerning intersectoral flows are discussed in Section 3.2 below. The statistical analysis provided in section 4 is motivated by the self-evident proposition that the business sector is likely to have more worthwhile investment opportunities at the margin than the household sector, and that a function of the financial system is to ensure that investable funds flow smoothly to take advantage of these opportunities.

On the other hand, the financial system is preeminently a network of assets and corresponding liabilities; the financial instruments approach emphasizes this aspect. Section 3.3 below elaborates the function performed by different financial instruments in enabling different agents (or sectors) to pool risk or diverse timepaths of net receipts. Section 5 provides a brief factual report on the use of different financial instruments in developing countries.

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9 Though the data distinguishes sectors on the basis of their ownership structure, and not on whether they are borrowing or lending sectors. Indeed as will be shown each sector both issues and acquires financial claims.

3.2 Intersectoral flows: theoretical framework

3.2.1 Interactions between the savings behavior of the domestic sectors

It is not, of course, the case that the various economic sectors identified in a flow of funds analysis are hermetically sealed from one another and interact economically only through their borrowing and lending activities. Indeed, private enterprises are owned by households, and the borrowings of government have ultimately to be serviced by recourse to taxation which may be thought of as falling on households too. So it is often thought that households are the ultimate focus of economic decision-making. According to this view, private firms act under the general direction of their shareholders and the actions of government are also noted and taken account of in the economic decisions of households. This line of reasoning underlies the much discussed "neo-Ricardian" theory of debt and taxation, and the widely used value maximization approach to enterprise financial decision-making.

If these stories were taken to the limit, the relations between the savings behavior of households and those of the other sectors would be exactly offsetting. Enterprise and government savings would simply be household savings at one remove. An increase in enterprise savings which does not result form a change in household preferences or opportunities would be fully offset by a reduction in the savings undertaken by the household. The same goes for government savings. If this were wholly true, then the analysis of flows of funds between sectors would be of secondary importance. It would not contribute to an understanding of the process of national savings and capital formation.

Whatever about the validity of the neo-Ricardian approach and value maximization theory in industrial countries (and they are much debated), it seems clear that the serious imperfections of capital markets make the idealised models of integrated saving behavior quite unrealistic for developing countries.

3.2.2 The fluidity of international flows

A simplistic model of international capital movements has resources flowing from countries which would otherwise have a relatively low marginal efficiency of capital to those which would otherwise have a relatively high marginal efficiency of capital. The flows would be sufficient to equalize the marginal efficiency of capital in all countries. A shift in savings behavior in one small country would not, according to this extreme view, result in any reduction in the investment funds available: the reduction in local savings would be made up by the inflow of capital in search of what would tend to become a higher marginal return on a smaller capital base.

The empirical evidence on the fluidity of international capital flows is somewhat ambiguous. For industrial countries Feldstein and Horioka (1980) observed a high correlation across countries in national savings and investment rates. This correlation would not be anticipated if the international capital flows always move to equate the marginal return on capital in all countries. This finding has generated considerable controversy, notably over how it should be interpreted[10] . A recent extension of the study included a sample of 50 developing countries[11].

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10 Cf. Obstfeld, M. "Capital Mobility in the World Economy", Carnegie Rochester Series on Public Policy, Vol. 24, 1986.

11 Dooley, M.P., J. Frankel and D. Mathieson: "International Capital Mobility", IMF Staff Papers, Vol. 34, September 1987, pp. 503-30.

This analysis found that the correlation between savings and investment was generally weaker for the developing countries; in fact there is a clear link only since 1974 and only for those developing countries not primarily reliant on official development assistance. For these countries, however, the link remains. The countries included in the data sample discussed in this paper all fall into this category.

The question of whether or not the foreign sector is an efficient residual supplier of funds is a central one. As is argued later, domestic financial markets may not be very efficient at channeling the savings of the household sector to the enterprise sector. In particular, they may be less able to absorb or cope with risk than is the financial system in some industrial countries. From a welfare point of view, this may not matter very much if the foreign sector can efficiently close any financing gap for the business sector that results. However if, as we will argue appears to be the case, the foreign sector's provision of funds is based on exogenous factors and not on the needs of the domestic business sector, then the potential distortions are considerable[12].

Foreign intermediation can play an important role in achieving investment efficiency. But when foreign flows do not flow smoothly in response to yield differentials there is a need for policies to improve the efficiency of domestic intermediation.

3.3 Instruments: sharing of risks

Even an economy in which each agent had no net acquisition of financial assets could involve a network of financial intermediation serving to pool

12 The sources of this inefficiency are discussed in the Annex, which also explains why they may be considerable.

risks and provide a smoother consumption pattern for all. This consumption smoothing or risk-sharing feature of the financial system tends to be neglected if there is too much emphasis on intersectoral net flows.

Financial instruments are essentially contracts which rearrange the distribution of claims on economic resources in different time periods and in different contingencies. Perfect financial markets allow the full resources of the economy to be allocated in an optimal manner. Financial market imperfections will result not only in a misallocation in each period of the resources that are available, but, through its effects on investment decisions, will tend to reduce the total amount of resources available over time.

A distinction can be drawn between the traditional loan contract, which promises a fixed payment except in the case of insolvency, and financial assets whose terms are tailored to the specific risk characteristics being faced by either borrowers or lenders. The archetypical tailored instrument is the equity, whose value is linked to the value of the enterprise[13]. Another example of a tailored instrument is the insurance policy. The financial systems of developing countries emphasize non-tailored instruments such as bank deposits. As will be discussed below, this limits the degree to which rearrangement of claims can take place.

3.3.1 Types of sharing

Intertemporal. A slightly artificial distinction can be made between the use of financial instruments to effect an intertemporal sharing of resources and their use to pool or share risk. Intertemporal sharing is the simplest kind.

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13 The equity is an extremely flexible instrument for rearranging the claims on economic resources. By defining the enterprise suitably, the equity can be tailored to virtually any contingency.

Even without considering risk, financial instruments can allow economic agents to pool the resources available to them so that each agent can smooth her consumption over time. In this way financial instruments can not only improve the welfare of all by achieving a better allocation of a given amount of resources, but by influencing investment decisions, they can result in a more resources being produced.[14]

In terms of inter-sectoral flows, this story is clearly crucial for borrowing by enterprises for projects which have long gestation periods. It is also an important element in household financial savings[15], which release the resources for investment by enterprises in projects that will yield a return which is higher than both the marginal rate of time preference and the potential yield on household investments such as housing. It is likewise important for the borrowing by government to the extent that this is underlain by high-yielding public expenditure on infrastructure, both physical and social. A driving force behind foreign sector lending to developing countries may also be a higher marginal efficiency of capital in developing countries[16]

Risk. But the risk sharing function is also important, both for the sellers and the purchasers of financial instruments. The risk of failure of an investment project will make the small entrepreneur reluctant to undertake it unless he can reduce his exposure to the the risk by selling participations in the project. If his total wealth is

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14 The argument is familiar, and illustrated in figure A2 in the Annex.

15 Life-cycle models of consumption predict a build-up of individual household wealth before retirement or old-age; much of this wealth will take the form of housing and other durables without the benefit of financial intermediation, especially in developing countries.

16 On the other hand for public borrowing, and as a result also for foreign borrowing, it may be the private rate of return on the expenditure to those in power for the time being, rather than a higher social rate of return which is driving the flows.

large, the entrepreneur can also reduce his vulnerability to failure by purchasing participations in other schemes whose success is likely to be negatively correlated with his own.

But it is arguably the household that is most influenced by considerations of risk in deciding to acquire financial assets and in the choice it makes between the different financial assets that are available. Unlike the enterprise, which may often be able to foresee the time-path of its financing needs over the years ahead and will make financing decisions accordingly, the typical household plans on a relatively smooth income and consumption pattern over time, but is buffeted by unexpected shocks. Households need a stock of wealth to achieve the optimum consumption pattern in the face of unfavorable shocks[17]; the stock can be built up on a planned basis, as well as being augmented by favorable shocks. To be useful, this wealth needs to be liquid or tailored to the possible shocks. These are characteristics offered more by financial assets than by most non-financial assets.

Considerations of risk-pooling also influence the willingness of the rest of the world to make loans to a particular developing country. But this consideration is symmetrical, and therefore may have little impact on net financial savings of the foreign sector.

3.3.2 Ability of instruments to share

Households and enterprises in developing countries interact on the financial markets by using a variety of instruments and institutions. The government and the foreign sector also participate. But not all instruments are equally well developed in these countries. Banking

17 Which could take the form of special consumption opportunities (such as the relaxation of a ration) as well as unexpected income shortfalls.

forms the bulk of the financial system in most developing countries. It must substitute for well-functioning[18] equity and bond markets in achieving a sharing between the sectors (and between individual households and enterprises) of risk and of the timepath of resource flows.

The banking system is limited in the degree to which it can perform this function. To take just one aspect, it provides to depositors as assets mainly or solely deposits which are denominated in money terms[19]. These do not, for example, protect against unexpected inflation. Furthermore, bank deposits do not enable saving households who do not own the borrowing enterprises to benefit from increases in the value of the assets of those enterprises. Many households would be willing to accept some increased risk in order to obtain such an opportunity. The limited menu necessarily offered by banks results in lower economic welfare than if a full range of well-functioning financial markets existed.

This is only one illustration of the unfulfilled potential of a bank dominated system. In order to provide a context for assessing the statistical findings of Section 5 below on the use of financial instruments in developing country flows, the following paragraphs provide an account of the particular characteristics of different financial institutions and instruments for sharing resources.

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18 The relative importance of the role of equities does not depend only on their relative share of total financing, but on the degree to which their use is widespread among enterprises, and also on the efficiency with which the equity markets function.

19 Except in countries where, because of chronic inflation, indexed deposits have become widespread.

Equity. From an economic point of view[20], equity is the archetypical tailored financial instrument. This is because it defines any project, enterprise or asset, and transfers claims to the returns on that asset. Most other financial assets can be regarded[21] as special cases of the equity contract. Any particular enterprise or prospect can be packaged in such a way as to divide the resources generated by the prospect between agents in any desired manner through the use of an equity contract. No other financial instrument is as versatile: a fixed interest security, for example, cannot allow the holder to share in exceptionally favorable outcomes[22].

In order to be attractive to saving households in terms of risk and liquidity, equities may need to be packaged, either by a financial institution, or, if a well-developed equity market exists, by the formation of a portfolio by the household itself.

The major drawback of equities is the problem of control over the management of the prospect or enterprise. Having obtained the resources to finance the project through the sale of shares, the entrepreneur may be in a position to divert some of the proceeds of the enterprise to himself, for example by overcharging for services that he himself provides to the enterprise, directly, or indirectly. While some control can be achieved through devices such as the appointment by the outside shareholders of directors, and independent audits of the enterprise's activities, this supervision is costly and likely to be only partially

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20 As opposed, for example, to a legal perspective. Much of the following discussion is not at all applicable to the legal forms of the various financial contracts discussed.

21 From the economic point of view; see the previous footnote.

22 The so-called "junk-bond" with its high coupon and high risk of default is an imperfect substitute.

effective in many circumstances. This is probably the most important type of imperfection in the capital markets and it has severely limited the growth of equity markets in developing countries[23].

Financial asset markets. If well-functioning financial asset markets (such as equity markets) exist, then all of the risk that is specific to a given prospect can be diversified away, if that is desired, by the construction of well-mixed portfolios. Thus the expected rate of return an entrepreneur will need to offer to the potential purchaser of a share may be much lower, in the presence of well-functioning equity market, than would be indicated by the specific riskiness of the project. The public sale of marketable shares thus offers external benefits to other potential share-issuers, by enhancing the comprehensiveness of the market and reducing the degree to which any given prospect carries specific, non-diversifiable risk.

This risk-pooling function of asset markets also applies to the risks facing agents other than the issuers of securities. For example a household which owns a tradable asset can realize its value quickly in a well-functioning market, thereby using the market to insure against the risk of a sudden shortfall in income or a sudden consumption need.

Few developing countries have well-functioning financial asset markets in this sense, but the trend is clearly towards their emergence.

Securities. Securities, or bonds, differ from equities in that they promise a fixed return, not normally dependent on the success of the

23 It also appears that entrepreneurs have been reluctant to share ownership rights with outside shareholders, and this has restricted the supply of equities also.

project or enterprise[24]. In the event of non-fulfilment of this promise, a penalty, such as the transfer of ownership of the enterprise itself, or some collateral asset, is suffered by the obligator. The bond contract escapes the problem of control by removing the dependence of the promised payment on the performance of the enterprise. At the same time, however, and by the same token, the contract does a much less efficient job in transferring the claim on the underlying asset[25]. If there existed only bonds, there would be comparatively little the entrepreneur with a risky venture could do to achieve a smooth consumption stream. That is not to say that bonds are always riskless instruments, with all of the risk of the project remaining with the issuer. Far form it: the probability of default may be very high. But the risk transfer which can be effected by the bond contract is very restricted, and cannot really be tailored to the risk-pattern of each project or enterprise.

Bonds transfer purchasing power between different time periods. A single traditional bond does this in a fairly rigid way: a transfer of purchasing power now is balanced by a regular stream of interest payments followed by a larger capital repayment[26]. A combination of

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24 Of course there is a great variety of financial instruments intermediate between the pure bond which is described here and the traditional equity share. So far, however, the growth of such intermediate type instruments has not been conspicuously faster in developing countries than that of traditional equities.

25 For example, the bond-holder does not benefit if the project is outstandingly successful.

26 In inflationary times the real value of the interest payments declines as time goes on, and the effective average duration of the purchasing power transfer is much lower. The real value of a bond with original maturity of, say, twenty years, will be a fraction of its original value only a few years after issue in inflationary times: despite the long initial maturity, the bond will have been almost fully repaid after only a few years.

several bonds, or more complex bond-type transactions, can allow two parties to tailor the sharing of a stream of payments to their mutual satisfaction.

Insurance contracts. While the holding of liquid financial assets can provide insurance against the uncertainty of timing of income and of consumption needs, it is not practicable or efficient for a household to hold financial assets in such an amount as to provide coverage against rare and very large shocks. Early death or incapacitation of the head of household, or accidental destruction by fire of the home could be examples. Similar reasoning applies to enterprises, for example with regard to fire, damage of goods in transit, and liability for accidents to workers and others.

This is the motivation behind the establishment of insurance enterprises which accept small premiums from many policyholders in return for coverage against such risks. The pooling of a large number of individually rare and large risks results in a steady stream of payments to policyholders commensurate with the inflow of premium income.

Insurance enterprises interact with other aspects of the financial system in a variety of ways. First, the policies have many of the characteristics of unconditional financial assets. They are a claim on resources even though the claim can be exercised only in certain contingencies. Indeed they are an example of what has been referred to above as a tailored financial instrument. They serve as a cushion against unforeseen shocks and enable holders to retain a smooth consumption path in the face of income shocks or to meet unusual consumption needs. Second, the management of insurance enterprises typically involves them holding a more or less large portfolio of financial assets themselves. The average time delay between the receipt

of premium income and the issue of payments to policyholders means that an insurance enterprise will tend to build up a fund. The longer the period over which insurance is provided for each premium payment, the larger this fund will tend to be. Third, their expertise in fund-management, and sometimes their ability to benefit from a favorable fiscal or regulatory environment, has induced insurance companies in some countries to offer "policies" which are essentially long-term savings media, rather than being specifically tailored to an insurable contingency.

Insurance enterprises facilitate the transfer of risks in two ways. First, they provide tailored contracts to the policyholders essentially eliminating diversifiable[27] (and for the most part non-business) risks. Second, their large funds can be composed of a diversified portfolio of financial assets which, though individually risky, are stable in the aggregate. In the absence of a well-functioning assets market, the large funds of insurance companies may provide a substitute, allowing individual entrepreneurs to fund projects more easily. In many countries, however, strict controls (designed to enhance the security of policyholders) govern the investment policies of insurance enterprises, and these limit the degree to which this risk diversification of assets can be achieved.

Bank deposits and loans. Bank deposits form the bulk of financial assets in developing countries. Like insurance enterprises, banks perform a risk-transformation function on both sides of their balance sheet. On the deposit side, banks provide a liquid asset which serves

27 Some risks are too big for insurance enterprises to insure. On the global level this could include climatic changes or global war. On a national level, floods or earthquakes could pose risks too large for enterprises to bear. International reinsurance of large risks serves to diversify such large national risks internationally.

to pool the individual stochastic needs for spending power. Only a small fraction of the deposit claims on the bank needs to be kept in liquid form, the remainder can be held in illiquid and higher yielding forms of asset. If each depositor owned a fraction of the bank's asset portfolio instead of having a deposit claim, he or she would not be assured of ready access to spending power to meet an unexpected consumption need. Especially in the absence of well-functioning asset markets, then, the bank performs an important liquidity generating function: the risk of unexpected cash requirements is transferred from the individual to all of the depositors, is pooled and thereby essentially eliminated[28].

Apart from liquid assets and government securities, banks hold in their portfolio loan claims. These are normally analogous to non-traded bonds, though in some countries banks may also hold equities. The degree to which banks accept a transfer of risk in their loan operation depends on the degree to which their loans are collateralized. Fully or over-collateralized loans transfer little or no risk since the bank is assured of full recovery of the amount borrowed with interest. In practice, however, collateral values are themselves risky; furthermore they may be correlated with the results of the project or enterprise. Even cautious banking systems accept and pool considerable amounts of risk.

Likewise, banks are reasonably good at transferring resources across time. While it is in the nature of the bank-borrower relationship that

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28 Except where financial distress may threaten to compromise the bank's ability to meet deposit withdrawals, a situation which has become more widespread in recent years.

banks will generally be reluctant to make long-term loans, a performing borrower will typically be able to rollover his loan, thereby converting a sequence of short-term loans into a long-term one.

However, controls over interest rates, both for depositors and lenders, has been a major obstacle preventing the banks from intermediating effectively in developing countries. Other controls, such as directed credit programs and lending at the behest of government have also weakened the ability of the banks to function in the way we have discussed. Such controls are arguably the most important single factor in limiting the effectiveness of the financial systems in developing countries.

The external sector. It is documented for many countries that residents have large holdings of financial assets outside the home country. Administrative and legal restrictions on outward capital movements are generally insufficient to inhibit recourse by savers to savings media offered by financial institutions abroad. Clearly part of the motivation for domestic savers in placing their funds abroad is political risk. In many cases interest rate controls at home also mean that foreign financial assets offer higher expected returns. But there is also a considerable gain from portfolio diversification along the lines we have discussed for other instruments, particularly when the domestic availability of such savings media is limited.

If one could be sure of fairly easy access by developing country governments and business borrowers to international credit the welfare

implications of this international intermediation of domestic savings may not be too serious[29]. As discussed below, however, such easy access is not apparently the case.

29 Admittedly it holds back the development of the domestic financial sector with the value added which might be retained in the developing world. Furthermore it can often distort incentives by requiring the involvement of developing country governments to guarantee private borrowings. But it would not result in a reduction of the total volume of investable resources to the developing countries concerned.

4 FINANCIAL ASSETS AND FLOWS IN DEVELOPING COUNTRIES

4.1 Main features of the data

The data used in this section are drawn from a variety of sources, some unpublished, some official, some based on the work of independent researchers, some drawn from World Bank sources[30]. Data for seventeen countries have been used. For most of the countries, the data are an elaboration of the national income and expenditure accounts, with savings and real investment data broken down by sector. In other cases the financial surplus figures are built up from flow of funds accounts based on balance sheet data from the financial system.

Financial Surpluses

This section is primarily based on the data for sectoral financial[31] surpluses (net lending) for four sectors[32] - household, business, government and foreign - for seventeen countries. State enterprises (where separately available) are included in the business sector.

Each surplus (or deficit if negative) is expressed as a percentage share of GNP. For each country there is data for at least three years; the longest time series is for Colombia (16 years). Except for four countries, the

30 See annexed list of sources. It should be noted in particular that no attempt was made to improve on the statistics obtained from other studies. The underlying methodology is not necessarily the same in all sources and it is likely that significant conceptual differences remain.

31 Henceforth the word "financial" will be omitted; except where explicitly stated, the discussion refers to financial surplus or equivalently net lending. A financial deficit (net borrowing) is treated as a negative surplus.

32 For most of the countries these four sectors are exhaustive. For a few countries a separate financial sector was identified in the data. This sector, where separately identified, was omitted from the data set being reviewed here. In other cases statistical discrepancies prevented the sectoral surpluses from adding to zero.

TABLE 4: SECTORAL SURPLUSES AS % SHARE IN GNP
Selected countries

Average for sample years

	Hhold	Business	Govt	Foreign
Algeria, 82-5	7.33	-14.57	4.12	0.25
Cameroon, 80-4	4.02	-9.44	2.65	2.77
Chile, 83-5	3.65	-6.92	-4.32	7.59
China, 82-6	7.01	-8.08	0.27	0.80
Colombia, 70-86	3.54	-4.63	-0.21	1.29
Cote d'Ivoire, 71-8	1.45	-7.74	1.29	4.40
Ecuador, 80-5	5.13	-6.77	-2.47	4.95
India, 70-82	5.52	-1.15	-5.47	1.10
Indonesia, 82-6	3.01	-4.06	-2.97	5.02
Korea, 80-5	6.97	-13.35	1.12	5.15
Malaysia, 80, 85-6	16.79	-7.15	-12.24	1.71
Philippines, 83-5	9.07	-6.96	-3.64	2.93
Portugal, 77-9, 81	14.31	-16.06	-7.28	7.58
Thailand, 81-3	6.78	-6.52	-4.28	5.72
Tunisia, 77, 80-4	2.05	-13.65	2.45	9.10
Turkey, 71-81	7.73	-10.99	-0.86	3.16
Yugoslavia, 70-85	7.02	-8.24	0.69	1.19
Average	6.66	-7.38	-1.69	2.37

time series are not really long enough to carry out statistical analysis. Instead we have pooled the data to yield 118 country-year observation points[33].

The most salient features of this data set are that (for all but one point) the household sector is a surplus sector, and that (for all but two points) the business sector is a deficit sector. The mean surplus of the household sector is 6.7% of GNP; the mean deficit of the business sector is 7.4%. Household surpluses range as high as 20% of GNP in a particular year. There is much wider variation in the government surplus (mean -1.7% of GNP) and the foreign surplus (mean 2.4% of GNP). The full data set is presented in Appendix Table 1, the country averages in Table 4[34].

There is no systematic variation by region evident in the data. Even for the household surpluses (shown in figure 1, with the countries grouped by region) Asia does not have uniformly high figures.

Self-financing ratios

Table 5 and Appendix Table 2 show the estimated self-financing ratios, i.e. the ratio of gross sector savings to gross sector investment for each of

33 Econometric techniques exist for improving the efficiency of parameter estimates in data which is a pooled cross section and time series. These techniques exploit the possible existence of country-specific and date-specific contributions to the disturbance terms. Without using these techniques estimation efficiency may be compromised to the extent that the error terms are not classical (for example they might display heteroskedasticity). Our data set spans seventeen years (1970-86) for seventeen countries, but of a potential total of 289 observations for that number of years and countries we have only 118 observations. This large ratio of missing observations precluded use of cross section-time series techniques.

34 A small data series for four industrial countries is shown in Appendix Table 4.

TABLE 5: SELF-FINANCING RATIOS

Country averages

Country, date	Hhold	Business	Govt
Cameroon 80-4	10.16	0.41	1.22
China 82-6	2.26	0.63	1.07
Colombia 70-86	1.67	0.53	1.20
Cote d'Ivoire 71-8	1.42	0.37	1.13
Ecuador 80-5	1.88	0.36	0.70
India 70-82	1.59	0.62	0.43
Korea 80-4	2.07	0.42	1.38
Malaysia 80, 85-6	6.95	0.54	-0.08
Portugal 77-81	2.45	0.02	-0.52
Thailand 81-3	2.94	0.58	0.04
Tunisia 77, 80-4	1.50	0.30	1.79
Turkey 71-81	3.08	0.23	0.88
Yugoslavia 70-85	2.11	0.73	1.29
Average	2.36	0.55	0.84

Selected countries, sample years.

the household, business and government sectors in thirteen countries. Of greatest interest is the ratio for business. It shows that this sector has had, on average, a substantial net external financing need in all countries[35]. On average over a period of years, the weighted average for the thirteen countries comes to just over one-half, so that, as a rough rule of thumb we could say that the data indicates that about one-half of business's needs for financing capital accumulation are met by external funding[36].

The self-financing ratios are based on data for gross saving and gross investment, as a share of GNP[37]. This data is of interest for its own sake, and is shown in Table 6 and Appendix Table 3. For the sample of countries and time periods covered, the household sector saved on average about one-half as much again as the business sector.

4.2 Exogenous determinants

What exogenous factors determine the sectoral financial surpluses? The question of whether the foreign, or the government net lending are exogenous to the household and business sectors will be reviewed later. For this section "reduced form" regressions were estimated purporting to explain variations in each of the sector surpluses without reference to each other.

The exogenous factors for which data were collected are openness (measured by the sum of import and export shares in GNP), per capita income, GNP growth rate, real interest rate (measured as a differential over the real

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35 Other than the Philippines. The Philippines data covers a rather disturbed period and records gross disinvestment by the business sector in some years: self-financing ratios have little meaning in such a context.

36 Ratios for a few industrial countries are also in Appendix Table 4.

37 Gross saving includes provision for capital consumption; gross investment includes changes in inventories.

TABLE 6: SECTORAL SAVING AND INVESTMENT

%GNP	Investment			Saving		
Country, date	Hhold	Business	Govt	Hhold	Business	Govt
Cameroon 80-4	0.4	18.7	5.9	4.4	9.2	8.5
China 82-6	5.5	22.1	6.0	12.5	14.1	6.3
Colombia 70-86	5.1	10.4	3.4	8.5	5.6	3.6
Cote d'Ivoire 71-8	3.0	12.3	8.9	4.4	4.4	10.2
Ecuador 80-5	5.0	11.1	6.4	9.1	3.8	4.8
India 70-82	9.3	2.9	9.6	14.8	1.8	4.1
Korea 80-4	5.3	20.0	4.6	10.3	8.3	6.3
Malaysia 80, 85-6	2.9	16.3	11.1	19.7	9.1	-1.1
Malta 80-5	7.3	12.3	6.4	8.7	6.2	9.8
Philippines 83-6	1.4	3.6	13.2	14.1	0.1	3.4
Portugal 77-81	10.1	17.4	3.9	24.8	0.3	2.2
Thailand 81-3	3.6	15.2	4.4	10.4	8.7	0.2
Tunisia 77, 80-4	4.4	20.4	5.2	6.5	6.2	9.1
Turkey 71-81	3.8	14.3	5.6	11.5	3.4	4.8
Yugoslavia 70-85	6.7	30.3	4.5	13.8	22.0	5.2
Average	6.0	15.6	6.7	12.9	8.6	4.9

Selected countries, sample years.

US dollar interest rate)[38], and population size. The regression results were somewhat sensitive to the exact specification of the equations[39], but a "best" set of results is shown in Table 7. The implications of the estimated equations may be summarized as follows:

More open economies have larger business deficits and larger household surpluses. More finance comes from abroad. As an indication of magnitudes, an increase of 10 percentage points in the combined share of imports plus exports increases business sector borrowing by 0.6% of GNP (or by almost one-tenth of its mean level in the sample of 7.4% of GNP).

High per capita income countries have a higher household surplus and a higher business deficit. There is less finance from overseas. An increase of $500 in per capita income is associated with more household lending to the extent of 1% of GNP.

Faster growth countries have more business borrowing financed by less government borrowing. A growth rate 5% per annum higher is associated with more business borrowing to the extent of 1% of GNP.

More populous countries have more household lending, more government borrowing and less borrowing from abroad.

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38 This variable is intended to capture the competitiveness of domestic financial assets relative to foreign financial assets.

39 In particular a decision had to be made whether to opt for results in equations which included country dummies, or whether to leave such dummies out. In favor of reporting results based on exclusion of country dummies is an expectation that this will increase the efficiency of the estimate of the impact of the other exogenous variables.

TABLE 7: REDUCED FORM EQUATIONS FOR SECTORAL SURPLUSES

Explaining:	Household		Business		Government		Foreign	
Openness	4.1	(2.5)	-5.5	(2.8)	-1.8	(0.9)	3.6	(2.6)
Per capita GNP	2.4	(5.2)	-1.5	(2.7)	0.4	(0.7)	-1.2	(2.2)
GNP growth rate	-0.1	(1.0)	-0.2	(2.7)	0.2	(1.8)	0.0	(0.1)
Real interest diffl.	-0.1	(0.0)	12.0	(2.8)	-5.0	(1.2)	-7.4	(2.2)
Population (log)	1.4	(4.4)	0.3	(0.7)	-0.9	(2.4)	-0.7	(2.3)
RSQ	0.25		0.34		0.13		0.21	
RBARSQ	0.22		0.31		0.09		0.17	
Standard Error	3.4		4.1		4.0		3.2	

Higher domestic interest rates (relative to those abroad) lead to less business borrowing and less lending from abroad. A ten percentage point increase in interest rates is associated with a reduction in business borrowing in the amount of 1.2% of GNP[40].

4.3 Pulling and pushing sectors

The independence of foreign and government surpluses

Turning to the data on intersectoral flows, we examined the correlation between the surpluses of the various sectors and discovered that, although these are linked by an adding-up constraint, the degree of bivariate correlation varies widely. One striking fact is the apparent lack of correlation between foreign and government surpluses. (Equations 1 and 2). Though least squares estimates imply a correlation, instrumental variables correction in equation 2 shows this to be spurious. Thus, if the foreign surplus is thought of as exogenous to the business and household sectors, we can interpret this as a lack of response of the government surplus to changes in the availability of foreign funds. Such changes must thus be absorbed by the business and household sectors[41].

G = -0.271 - 0.286 F (1)

(0.6) (2.7)

RSQ=0.060 # of obs = 118 (full sample) OLS

G = -2.208 - 0.359 F (2)

(2.4) (1.3)

RSQ=-0.24 # of obs = 118 (full sample) 2SLS

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40 It should be noted that this result is not in line with the theory that higher interest rates lead to more domestic intermediation.

41 In all of the regression equations, the absolute value of the t-statistic is shown in parentheses below each regression coefficient.

The foreign and government sectors are the pushing sectors

As explained, a key question is whether the foreign surplus may be regarded as exogenous to the business and household surpluses. Regression equations explaining household and business surpluses respectively by foreign or[42] foreign plus government surplus (FG) identified a strong negative correlation in the case of the business sector, and a weaker negative correlation in the case of the household sector. (For example equations 3 and 4).

These estimates were obtained by ordinary least squares. One way of gauging the degree to which FG is exogenous is to re-estimate the equation by an instrumental variables technique (such as 2SLS) and assess the difference between the two estimates. Equations 5 and 6 use an instrument list[43] with this in mind. The finding is that the coefficient of the sum of foreign and government surpluses does not change very dramatically when moving from OLS to 2SLS, especially when a reduced data set omitting three countries which experience outlying behavior is used (equations 3' to 6')[44]. To the extent that there is bias, it is in the sense of exaggerating the impact of foreign and government surplus on the household sector. With the full sample, after correcting for simultaneous equations bias, the estimated impact of the sum of foreign and government surplus on

42 The similarity of the coefficients on the G and F terms in the estimated equations suggests that the business and household sectors both respond to a financing shock to a degree which is independent of the source of the shock. This was verified by imposing the restriction that the coefficient on each of F and G be the same. This restriction satisfied the appropriate F-test.

43 GNP per capita, share of exports in GNP, inflation, population, real interest differential vis-a-vis the US$ and GNP growth rate.

44 Observations for Malaysia, the Philippines and Portugal are outliers in equations (3) and (4). This suggested examining results for a reduced data set omitting these countries. The exclusion of outliers is always controversial; in this case the uncertain quality of some of the data, and the certainty that the equations are underspecified seems to argue in favor of erring on the side of exclusion.

the household surplus is insignificantly different from zero (equation 5). With the reduced sample there is a significant effect, but it is small (equation 5').

H = 6.51 - 0.331 FG (3)

(18.6) (4.9)

RSQ=0.171 # of obs = 118 (full sample) OLS

B = -6.62 - 0.637 FG (4)

(17.5) (8.7)

RSQ=0.397 # of obs = 118 (full sample) OLS

H = 6.07 - 0.105 FG (5)

(13.9) (0.7)

RSQ=0.091 # of obs = 118 (full sample) 2SLS

B = -6.07 - 0.917 FG (6)

(12.7) (6.0)

RSQ=0.321 # of obs = 118 (full sample) 2SLS

H = 5.61 - 0.184 FG (3')

(19.5) (3.2)

RSQ=0.090 # of obs = 108 (reduced sample) OLS

B = -5.69 - 0.788 FG (4')

(18.2) (12.7)

RSQ=0.605 # of obs = 108 (reduced sample) OLS

H = 5.55 - 0.158 FG (5')

(17.4) (2.0)

RSQ=0.088 # of obs = 108 (reduced sample) 2SLS

B = -5.65 - 0.803 FG (6')

(16.3) (9.2)

RSQ=0.605 # of obs = 108 (reduced sample) 2SLS

Relying especially on the reduced data set, we conclude that FG is exogenous to the household and business sector surpluses, and that the response of the business sector is much larger - five times as large or more - than that of the household sector.

In order to discover whether the response of the business surplus to foreign and government shocks was achieved by a reduction in investment or an increase in savings, regressions on each component were run for a smaller sample of countries where savings and investment were separately available (equations 7 and 8). The results were unambiguous. A fall in foreign sector or government lending is associated with a reduction in business investment and not in an increase in business saving[45].

BBI = 13.53 + 1.111 FG (7)

(14.0) (3.7)

RSQ=0.073 # of obs = 104 (full sample) 2SLS

BBS = 7.41 + 0.268 FG (8)

(8.9) (1.0)

RSQ=0.005 # of obs = 104 (full sample) 2SLS

The conclusion of this analysis is that exogenous swings in the availability of foreign finance or in the government's surplus are absorbed almost entirely by the business sector. The household sector does not, in other words, come forward to any large extent with additional financial

45 Curiously, we also found that, while household surplus responds little to FG, there is a correlation between FG and each of household savings and investment separately. The size of the estimated impact on each is about the same resulting in a negligible impact on the household surplus.

Figure 1

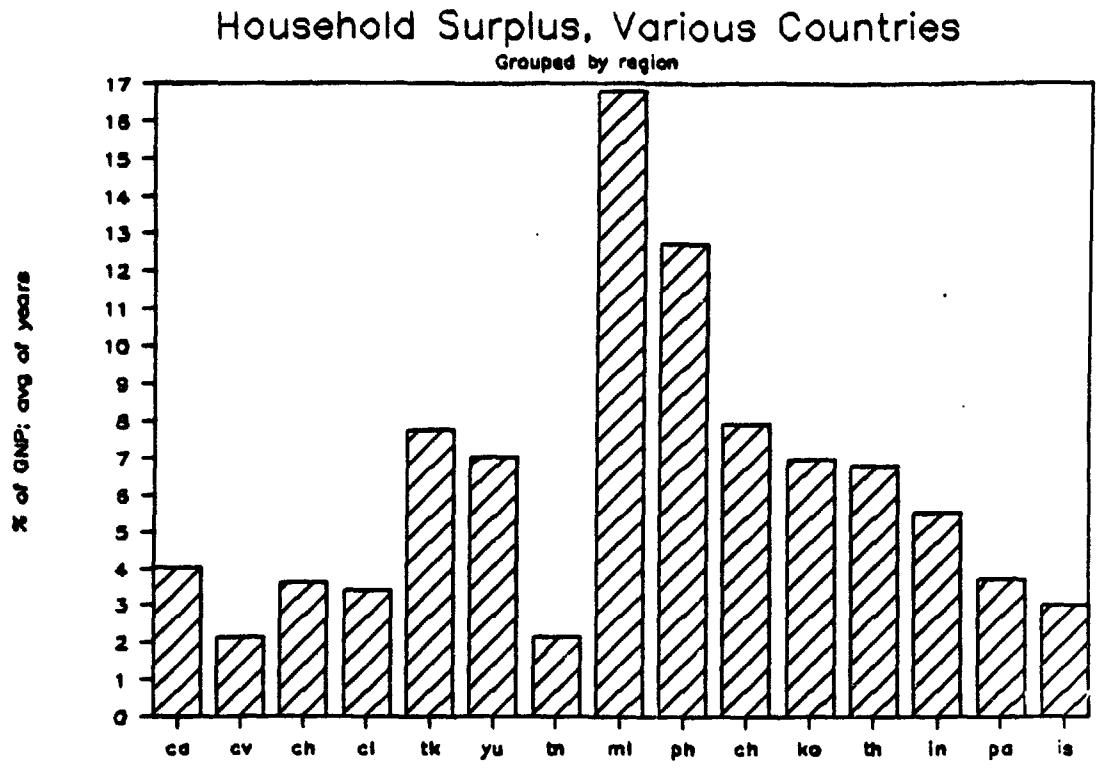
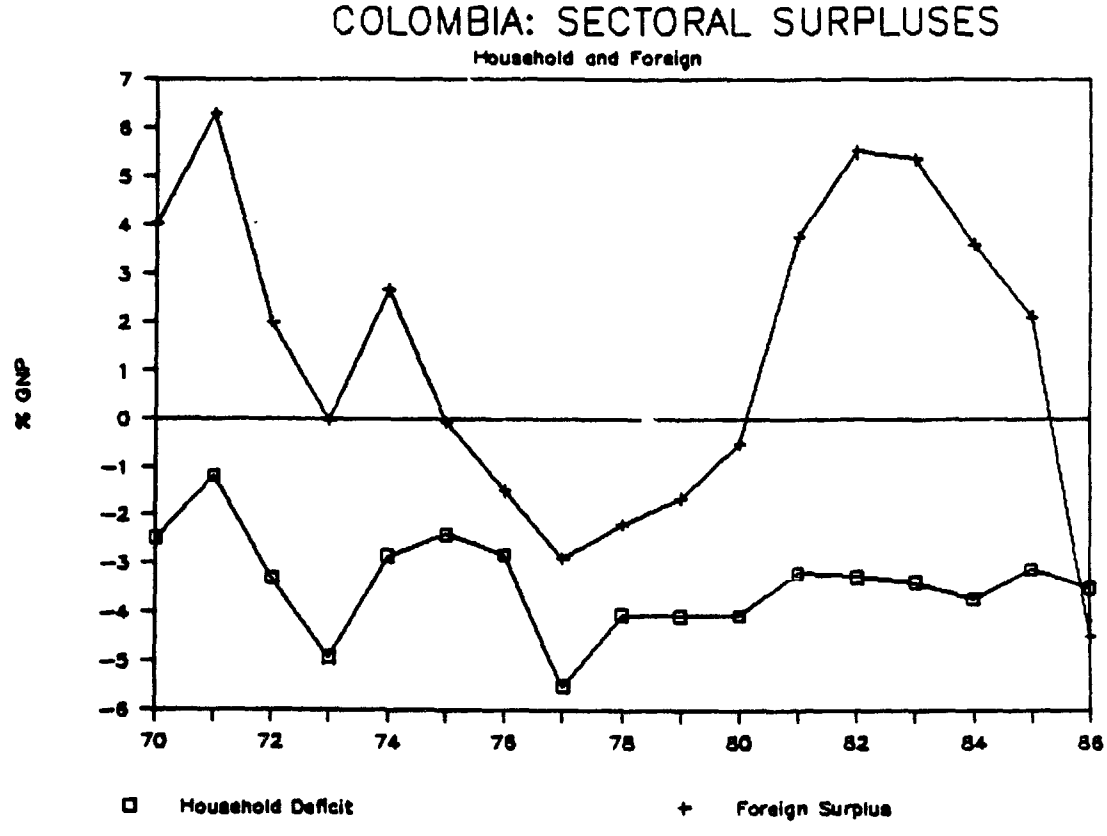


Figure 2



saving so as to make good any shortfall in foreign financing. Furthermore, we also discovered that government borrowing crowds out the business sector much more than the household sector. It should of course be noted that this argument is based on average behavior of the countries in our sample, and there are exceptions in specific countries at specific times. Like all conclusions based on econometric evidence it is subject to revision in the light of the collection of additional information.

4.4 Cyclical factors in individual countries

Sectoral surpluses in most of the countries which we examined are quite variable from year to year. Here we briefly mention some features of the experience of four countries for which relatively long time series are available.

Colombia. Figure 2 displays the co-movements of the household surplus with the net position of the foreign plus government sectors, 1970-86. The first half of this period was marked by sharp fluctuations in the series, while the second half displays stability. The underlying reason for the difference between the two halves is evident from figure 3: from 1978 on, movements in the external surplus were sterilized by fiscal action: the external and fiscal surpluses became mirror images of one another. In this respect the second half of the Colombia data set provides an exception to the general rule that government surplus does not respond to shifts in the external sector. In Colombia, government revenue is very dependent on export taxes, and thereby negatively correlated with the current account deficit (i.e. the surplus of the foreign sector) But the government did not, however, allow fluctuations in this revenue source to influence expenditure. Because of the importance of export performance in GDP, the

Figure 3

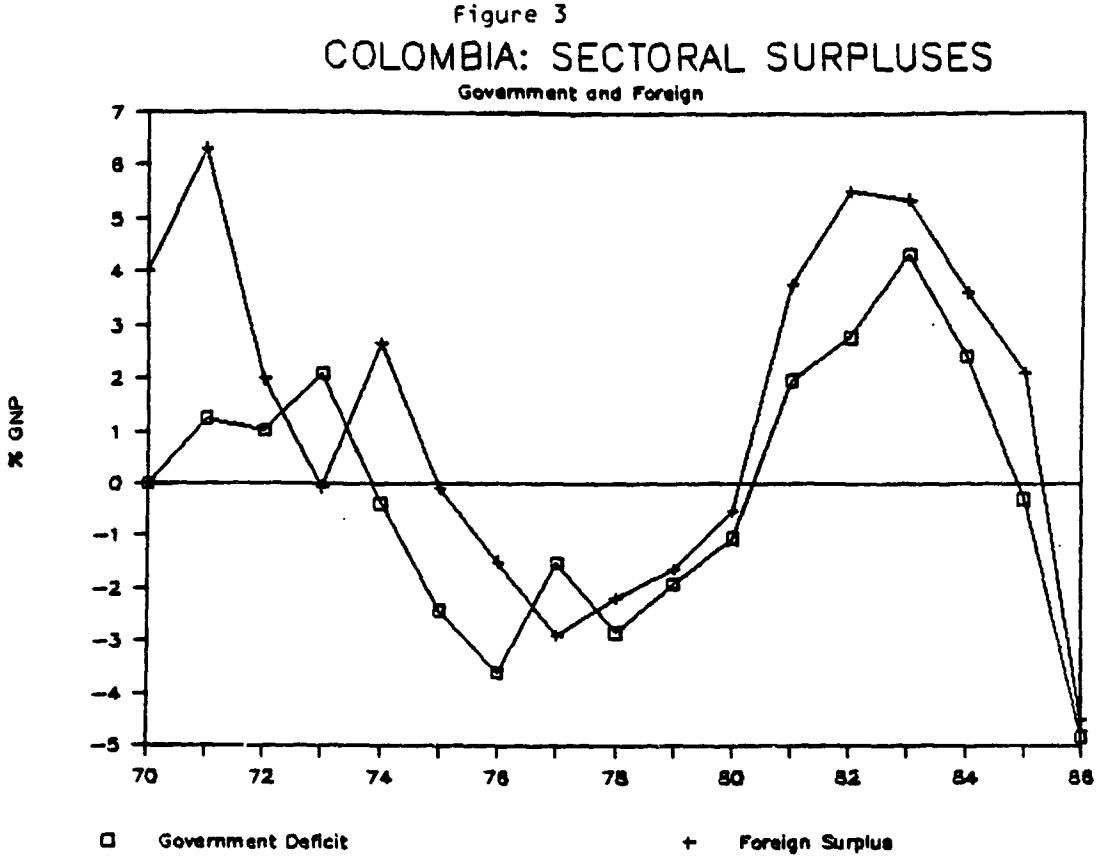
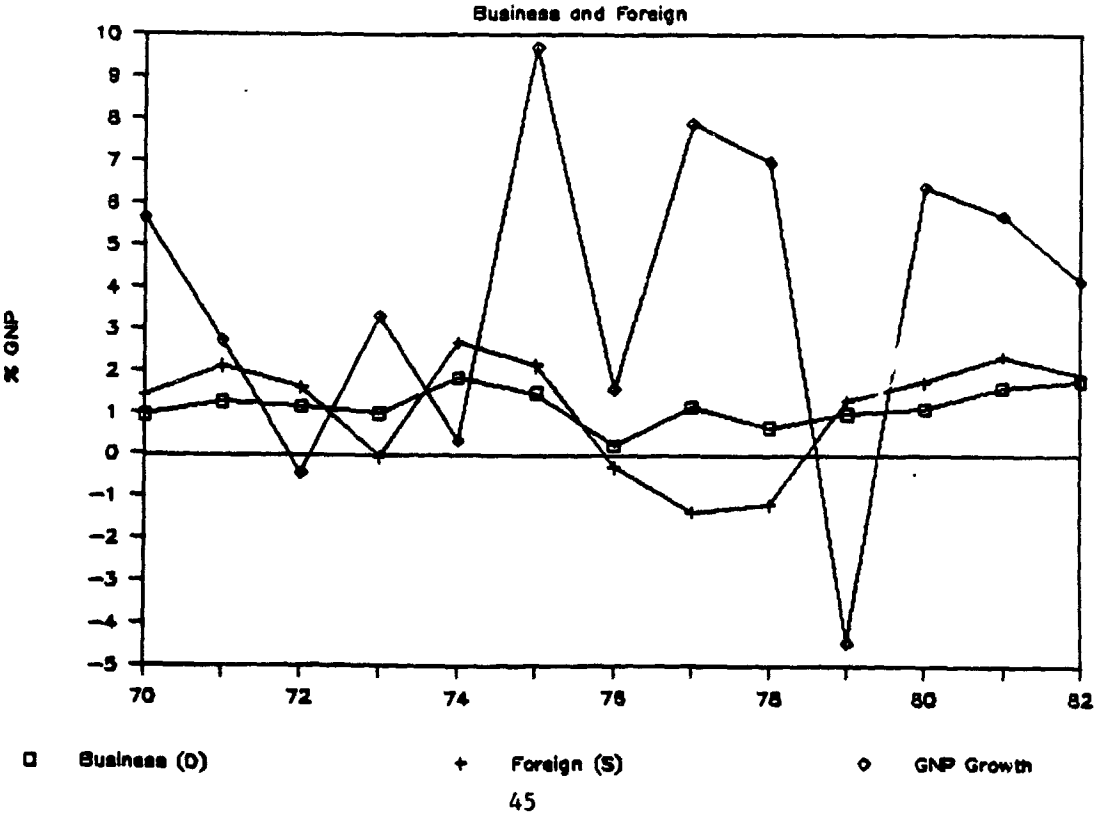


Figure 4



foreign surplus is also negatively correlated with the GDP growth rate in Colombia, which thus displays a clear cyclical pattern in two of the sectoral surpluses.

India. In contrast, the sharp fluctuations in GDP growth rates in India during the sample period 1970-82 were not reflected in any clear cyclical pattern of sectoral surpluses (figure 4). Some negative correlation between foreign and household sectors became less evident in the latter part of the sample period. Regression analysis suggests a lower responsiveness of business surplus to foreign shocks in India than in most other countries.

Turkey. The business sector in Turkey increased its recourse to external financing fairly steadily over the period 1971-80. A negative correlation of business and foreign surplus can be seen in figure 5, as well as from regression analysis (correlation=-0.57).

Yugoslavia. Yugoslavia provides some interesting features. Until 1983 there is a strong negative correlation between the business and foreign sector (figure 6). After that the relation breaks down, resulting in a fairly weak correlation (-0.33) over the whole period. For the household sector the story is also noteworthy. In contrast to the non-socialist countries, which display a negative correlation between household surplus and both government and foreign surpluses, with shocks from each source having about an equal impact, in Yugoslavia the government surplus is positively correlated with the household surplus. The result is that the estimated impact of changes in government plus foreign surplus is about zero, with two offsetting effects cancelling each other.

Figure 5

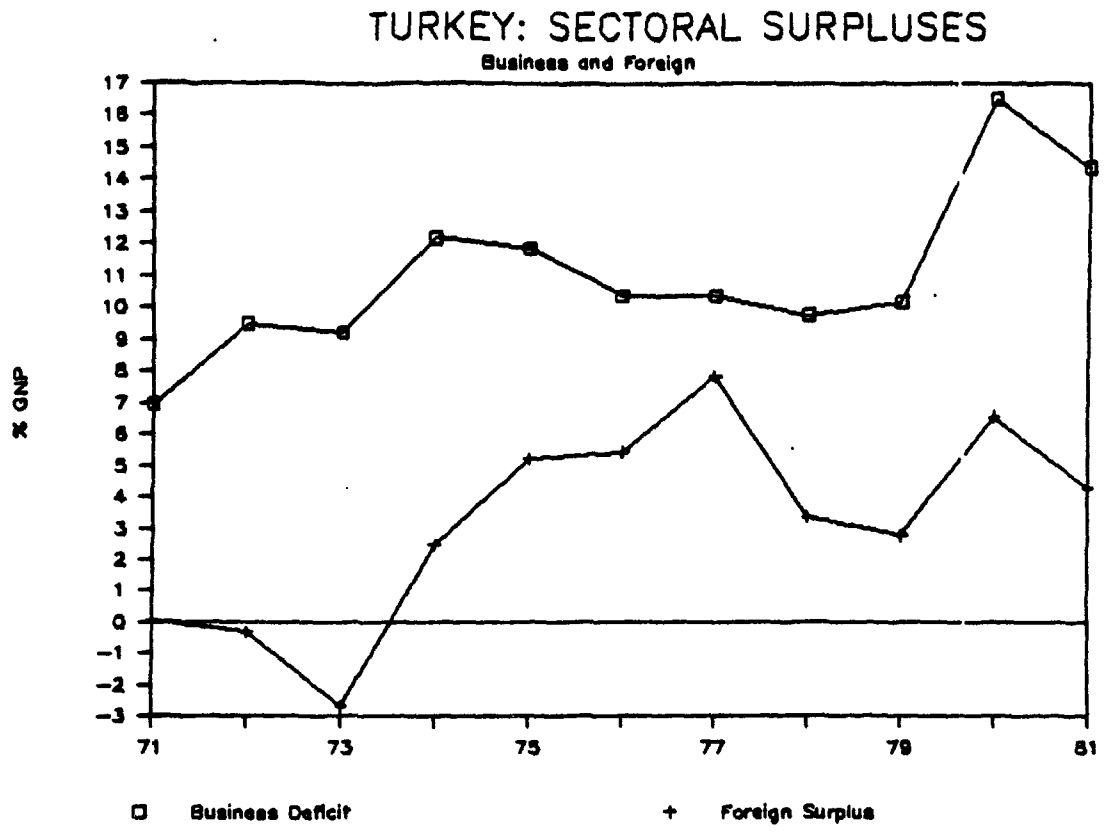
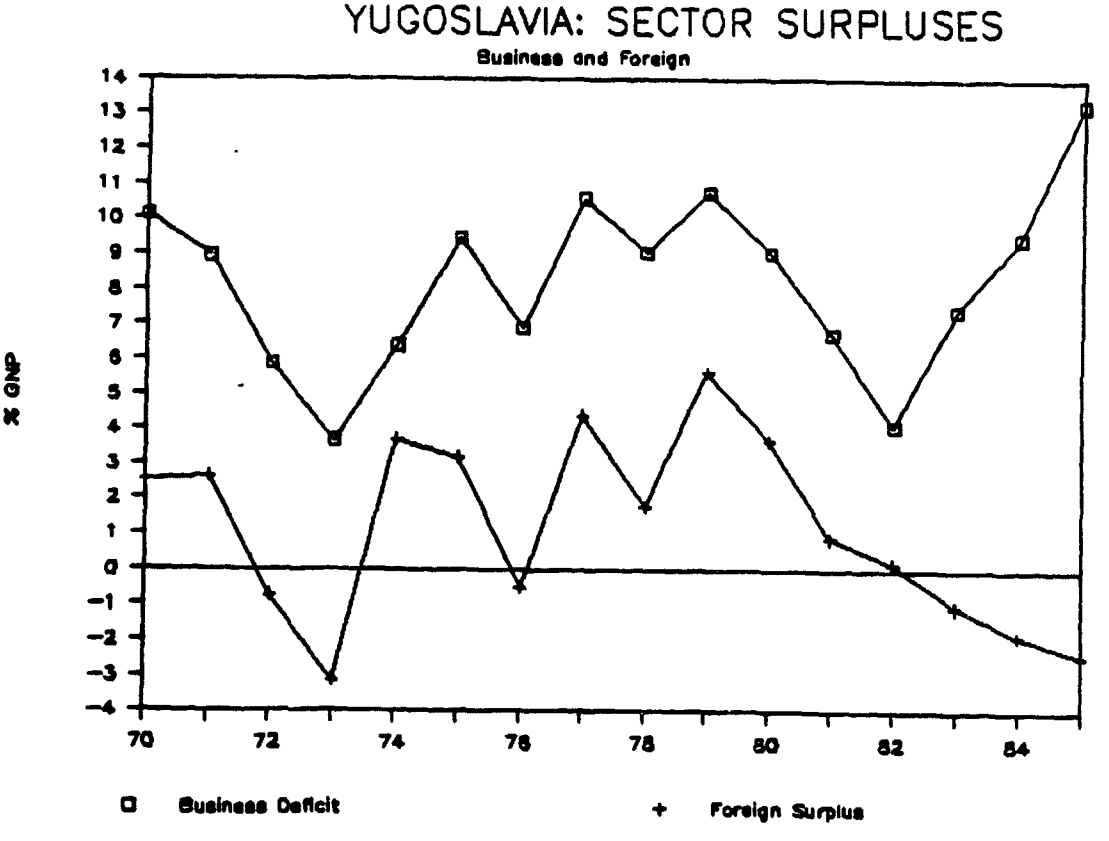


Figure 6



4.5 The message from the principal components[46]

The multidimensional nature of the intersectoral flow data makes it somewhat difficult to summarize the experience of different countries and identify trends and common features. One way of simplifying this kind of data set is to consider only first one or two principal components[47] of the data. The first principal component is an artificial data series constructed in such a way that it has a very high correlation with all of the four sectoral surplus series. It is thus a good summary of the entire data set.

The first principal component "P1" of the data matrix consisting of the four surplus vectors (each consisting of 106 data points) is plotted in figure 7. It has no immediate interpretation as an economic variable, but provides the basis for some further analysis. This component "explains" just over 50 per cent of the variation in the four surplus vectors.

Though with only 50 per cent explanatory power of a four-dimensional data set, P1 is not as good a one-dimensional summary as one might hope for, it nevertheless seems worth analysing in its own right. Figure 8 orders the countries by the average value they score on this variable over their sample period. A confidence interval is constructed around each mean. The ranking of countries once again shows no clear pattern by geographical region.

An interesting feature of P1 is the differing degree to which it is correlated with individual surplus series. Its correlation with the

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46 This section is based on a somewhat smaller sample, not including Ecuador or Portugal, and with a number of small differences from the main data set.

47 A precise statement of the properties of principal components is contained in, for example, T.W. Anderson, An Introduction to Multivariate Statistical Analysis, (New York: Wiley), 1958.

Figure 7

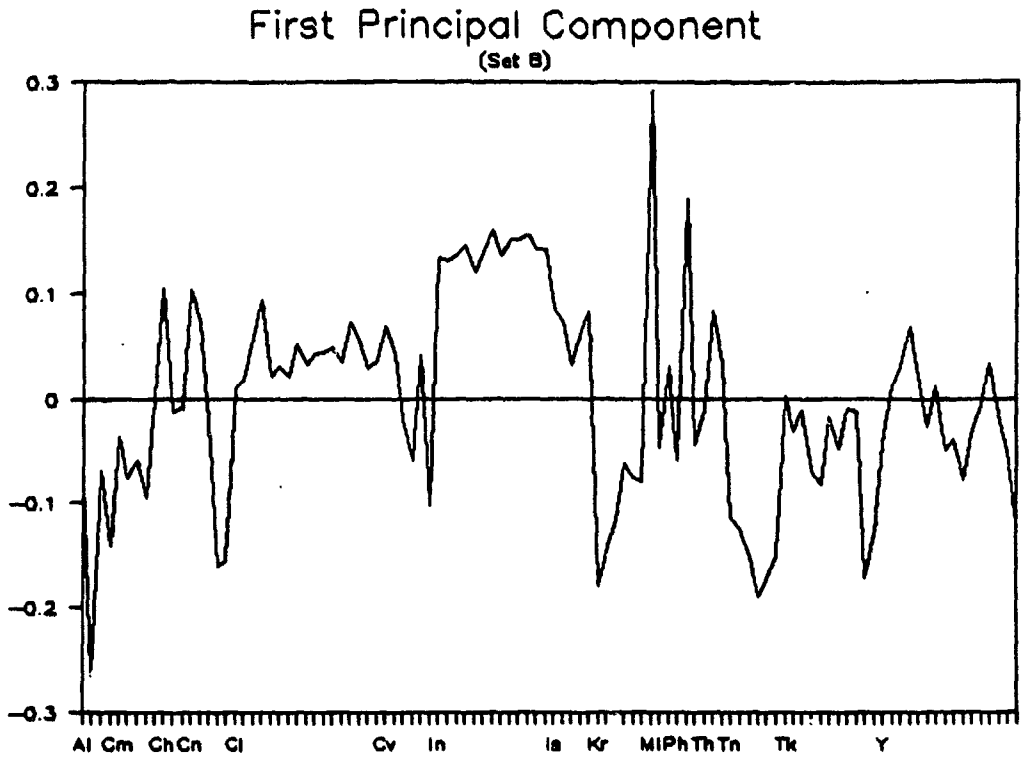
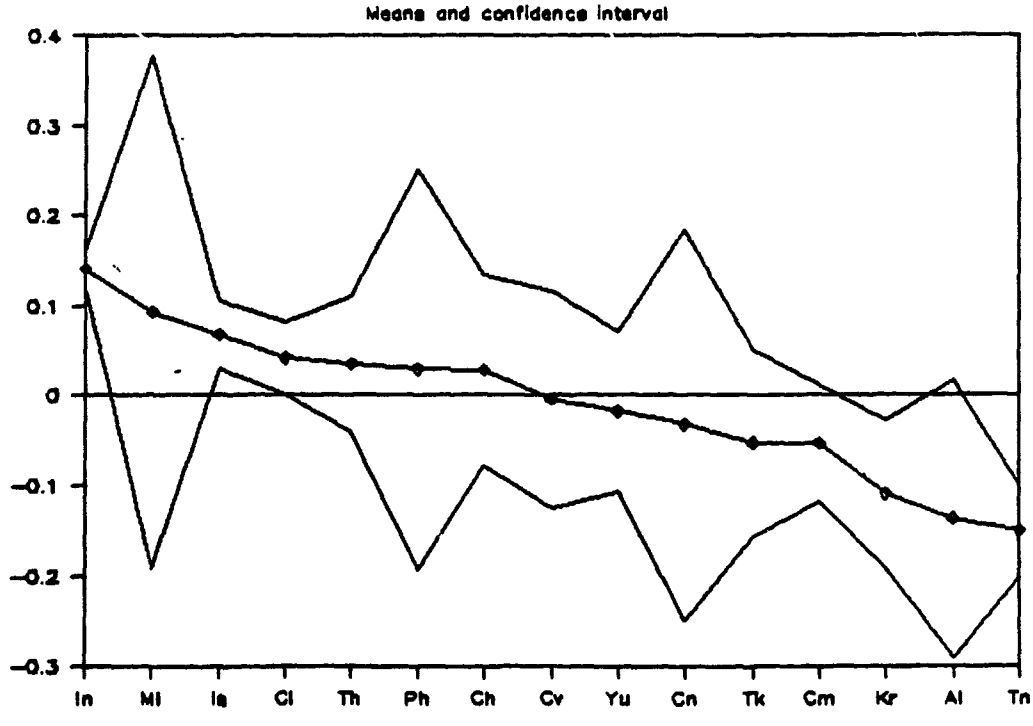


Figure 8



business sector is highest (explaining 94% of the variation in that surplus), followed by the government surplus, of which it explains 50%. For the foreign surplus the explanation is only 12%, and for the household sector only 2%. If P1 adequately summarised the data we could say that the main systematic factor in a cross-country review of sectoral surpluses was a covariance between government and business surpluses. The explanatory power of P1 is not high enough to warrant such a categorical statement; nevertheless the principal components analysis calls attention to the role of the government in crowding out the business sector[48].

48 The second principal component, P2, which explained about 26% of the variation was heavily weighted towards the household surplus (explaining 83%) compared with 32% for the government sector and less than 4% each for the remaining two. It may represent the (lesser) crowding out of households by the government sector. The third principal component, P3, carried most of the explanatory power for the foreign sector.

5 INSTRUMENTS IN DEVELOPING COUNTRY FLOWS

Information about the instruments used in financial flows in developing countries is sketchy. For only a few countries are reasonably complete capital finance accounts available and even these are not prepared on a strictly comparable basis. Table 8 presents composite figures for eight countries in respect of which data are available. For each country, an average of three consecutive years was taken[49].

There are quite wide variations between the data for individual countries from which the composite is formed. This may be partly due to differences in the methodology of data collection, but is also undoubtedly also attributable to real differences in economic structures[50]. Accordingly, the composite should not be seen as a norm to which most countries approximate, but more as an approximate average of a fairly disparate group of country structures.

The main features of the business and household sector flow use of financial instruments are displayed schematically in figure 9. This shows the use of different types of financial instruments in household and business sector flows. The width of the arrows represents the relative magnitude of flows, based on the six-country composite of Table 8. Thus for example households

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49 Except Portugal: two years. Data for a composite of four industrial countries are shown in Appendix Table 4.

50 The cases of Cameroon and Yugoslavia can be mentioned. In Cameroon there is a large informal financial sector, more developed, perhaps than in any other country. The 1984 study from which our data are drawn attempted to estimate the size of the informal intermediated financial transactions. While this was deduced as a residual, and may not be very trustworthy, it is interesting to observe that savings placed with the informal sector were estimated to account for about 50 per cent. of net financial savings of the household sector in Cameroon during 1980-84. The researchers estimated that this provided over 10 per cent of the corporate sector's use of funds, and over 25 per cent of their financial deficit. In Yugoslavia, the scale of trade credit seems to be much higher than in other countries, possibly reflecting the socialist organization of production. Furthermore the widespread holding of foreign-currency denominated deposits has had a significant effect on the structure of flows in Yugoslavia.

TABLE 8: FLOW OF FUNDS FOR COMPOSITE COUNTRIES

% GNP	Composite of six countries								
	Household			Business			General Government		
	Net	Ass	Liab	Net	Ass	Liab	Net	Ass	Liab
Currency and deposits	6.1	6.1		2.4	2.4	0.1	0.8	0.9	0.1
Securities	1.1	1.2	0.1	-1.8	0.5	2.3	-0.8	0.1	0.9
Equities and stocks	1.8	1.8		-2.5	1.0	3.5	1.0	1.0	
Loans	-3.6		3.6	-8.9	1.4	10.3	-3.1	1.1	4.2
Insurance and pension	1.6	1.6							
Trade credit	-0.7	-0.1	0.6	0.6	2.3	1.7			
Other	0.5	0.3	-0.2	-1.3	0.6	1.9	2.1	2.2	0.1
Total	6.7	10.9	4.2	-11.5	8.3	19.8	0.1	5.4	5.3

% GNP	Composite of eight countries					
	Household			Business		
	Net	Ass	Liab	Net	Ass	Liab
Currency and deposits	9.3	9.3		2.8	2.9	0.2
Securities	1.1	1.2	0.1	-1.2	0.6	1.8
Equities and stocks	1.0	1.0		-2.1	0.8	2.8
Loans	-3.7	0.0	3.7	-11.8	2.3	14.1
Insurance and pension	1.2	1.2				
Trade credit	-0.6	0.0	0.5	0.3	5.3	5.0
Other	0.4	0.2	-0.1	1.6	3.3	1.7
Total	8.7	12.9	4.2	-11.9	15.3	27.2

Cameroon, Cote d'Ivoire, Ecuador, Korea, Portugal, Thailand, Turkey and Yugoslavia
Figures for government sector not available for Portugal or Yugoslavia.

acquired money in an amount equivalent to 6.1% of GNP, while business obtained loans in an amount equivalent to 6.1% of GNP. Flows within the financial system are not shown, but their importance is hinted at by allowing the bubbles representing certain instruments to touch. The importance of money and loans is evident, as is the two-way nature of the interaction of each of the sectors with the financial system.

On the basis of the countries that have been examined, a stylized typical structure of flows would be:

- For households, gross borrowing, mainly from banks, equivalent to about one-quarter of gross lending. Some two-thirds of gross lending in the form of bank deposits, the remainder primarily distributed between life insurance and pension fund reserves, bonds (government or corporate) and equities.

- For the business sector, gross borrowing equal to perhaps twice the amount of gross lending. Trade credit an important part on both sides. Loans (including loans from abroad) forming about one-half of gross borrowing and thus of the same order of magnitude as net borrowing). Bonds and equity forming about ten to twenty per cent of gross borrowing; sometimes less.

Some average ratios may be noted from the composite: gross claims on insurance funds account to about 5 per cent of gross household acquisition of financial assets, the figure for equities is about 9 per cent. On average households acquired about six times as much money as equities. The net borrowing by the business sector through loans was about six times as great as its net issues of equities.

In summary, the data confirm the general belief that banks dominate the financial system and that loans are far more important than equities. It is also clear that both the household and business sector have gross

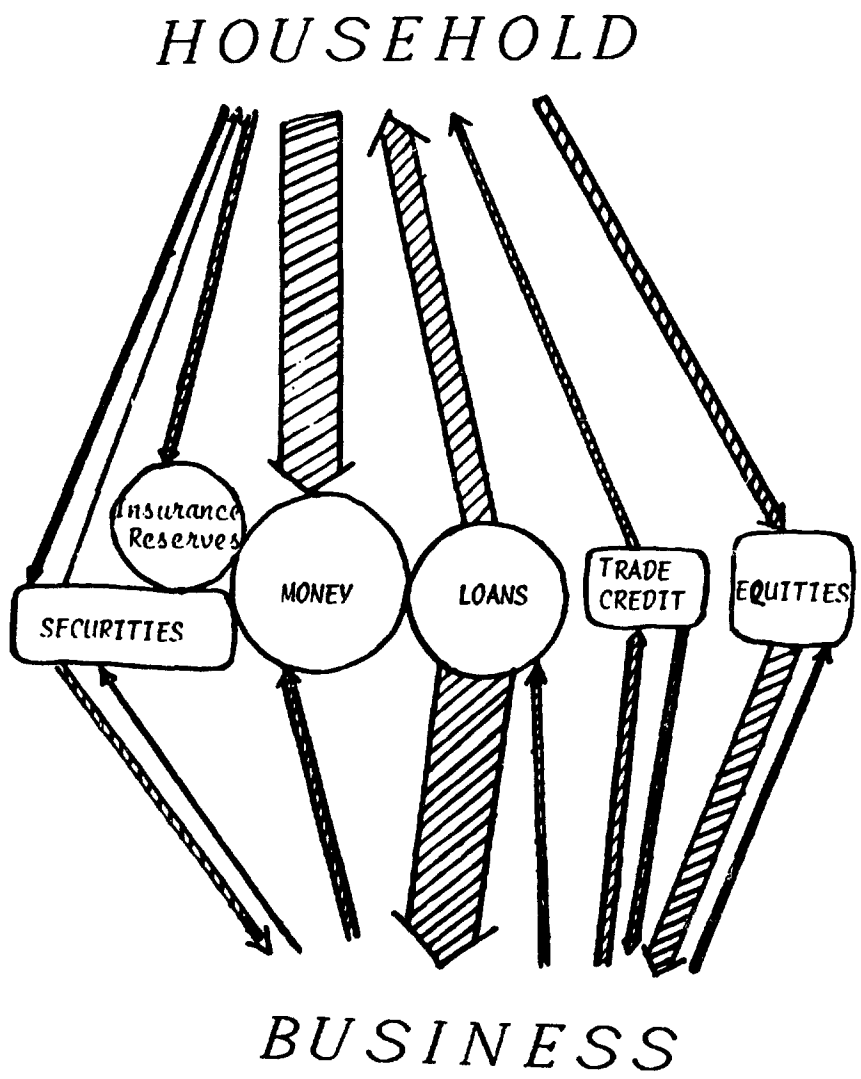


Fig. 9 Financial Instruments in Household and Business Flows
(Based on experience of six developing countries)

The figure shows the relative size of annual flows into and out of each of the six types of financial instruments to and from the household and business sectors. The width of the arrows indicates the size of the flows, thus households acquired money in an amount equivalent to 6.1% of GNP, while business obtained loans in an amount equivalent to 10.3% of GNP

transactions far in excess of their net position, with the household sector's borrowing being primarily from banks, and the business sector acquiring money and trade credit claims on itself

6 SUMMARY AND CONCLUDING REMARKS

Flows of funds between sectors. The savings which each economic sector puts aside out of its income each year may be applied to the acquisition of real or financial assets. A sector which acquires real assets in excess of its savings has to sell or issue financial assets. The difference between a sector's net saving and its net acquisition of real assets is referred to as its financial surplus or deficit, or more simply as its borrowing or lending. Information on the borrowing and lending of the various sectors are contained in the flow of funds, or financial accounts, statistics which are available for most of the industrial countries, and for a small number of developing countries.

A review of these statistics for seventeen developing countries reveals that the household sector is a net lender in almost all cases. The business sector is almost always a net borrower sector. The government sector is sometimes a net lender, but more often a net borrower, while the opposite is true for the foreign sector.

Self financing ratios. Besides comparing the sectoral financial surpluses to GNP, it is of interest to know what proportion of each sector's acquisition of real assets is financed out of its own saving. On average, the household sector saves more than twice the amount needed to finance its accumulation of real assets; the remainder being lent to other sectors.

The ratio for the business sector is the most interesting. Overall about one-half of real capital formation by business is externally financed. This would be consistent with a picture in which the business sector continually generates worthwhile investment opportunities in excess of its ability to

provide finance from internal sources. This highlights the important role played by the financial system in channeling savings from the household to the business sector.

There is some evidence that households in economies with higher per capita income, and in those which trade extensively with the rest of the world tend to have higher financial surpluses.

Use of financial instruments. The flow of investable resources from households to enterprises takes a variety of forms and uses a variety of instruments. The amount of data available here is very limited. Common features of the situation in most of the countries which have been examined is a high reliance on bank deposits and loans, and the comparatively small role of equity finance. Trade credit is a potentially important source of finance for the corporate sector, though the flow can be negative.

Responsive and unresponsive sectors. Analysis of the flows in developing countries suggest that the foreign sector cannot be relied upon to be a passive or residual provider of funds to the domestic economy. Fluctuations in the provision of foreign funds, i.e. in the current account deficit of the balance of payments are more correlated with private sector net financial surplus or deficit than with that of the government. Fluctuations in the financial surplus of government can also constrain the net borrowing of funds to the business scetor. In particular, a shortfall in foreign finance, or a reduction in government surplus, appears to result on average mainly in a reduction in the corporate sector deficit, mainly achieved through lower business investment. The household sector surplus responds little. The availability of investable funds to the business sector is highly dependent at present on government finance and on the vagaries of the international capital market.

Concluding remarks. For the past five or six years, and prospectively, the volume of external flows into developing countries has been and will probably remain quite restricted. What lessons may be drawn from past experience as to the likely evolution of financial flows and financial intermediation in the years ahead?

It would help if governments became net lenders rather than net borrowers. Failing that, the main message from our analysis is that the business sector will be increasingly dependent on a flow of household savings which up to now has not been very responsive to the financing needs generated by business sector investment opportunities.

A possible cause for this lack of response has been the relatively undeveloped and in some cases repressed nature of the financial system reflected in the heavy reliance on bank intermediation. In an environment of attenuated external inflows, action to improve the ability of the financial system to offer a wider range of instruments should yield substantial benefits.

APPENDIX TABLE 1: SECTORAL SURPLUSES AS PERCENTAGE OF GNP

	year	Hhold	Busn	Govt	Forgn
Algeria	1982	5.6	-9.7	5.3	0.8
	1983	8.6	-22.4	5.2	0.8
	1984	8.2	-11.3	1.5	0.3
	1985	6.8	-14.9	4.5	-0.9
Cameroon	1980	3.3	-9.2	-0.1	6.0
	1981	3.8	-11.1	1.3	6.0
	1982	3.7	-9.7	2.7	3.3
	1983	4.1	-11.0	5.4	1.5
	1984	5.3	-6.2	3.9	-3.0
Chile	1983	2.9	-2.8	-5.0	5.0
	1984	3.3	-9.2	-4.5	10.3
	1985	4.8	-8.8	-3.5	7.5
China	1982	4.2	-1.7	-0.6	-1.9
	1983	5.6	-3.6	-1.0	-1.0
	1984	8.7	-8.4	-0.1	-0.2
	1985	7.4	-13.6	1.9	4.3
	1986	9.2	-13.1	1.1	2.8
Colombia	1970	2.5	-5.9	-0.5	4.0
	1971	1.3	-6.0	-1.6	6.3
	1972	3.4	-4.0	-1.4	2.0
	1973	4.9	-2.6	-2.2	0.0
	1974	3.0	-5.8	0.2	2.6
	1975	2.6	-4.6	2.1	-0.1
	1976	3.0	-4.9	3.4	-1.5
	1977	5.6	-4.0	1.3	-2.9
	1978	4.3	-4.7	2.6	-2.2
	1979	4.2	-4.3	1.7	-1.6
	1980	4.2	-4.4	0.8	-0.5
	1981	3.4	-4.5	-2.6	3.8
	1982	3.9	-5.9	-3.5	5.5
	1983	3.5	-4.1	-4.7	5.3
	1984	3.7	-4.5	-2.8	3.6
	1985	3.2	-4.2	-0.6	2.1
	1986	3.6	-3.5	4.4	-4.5
Cote d'Ivoire	1971	2.0	-4.0	-3.1	4.1
	1972	1.7	-4.9	-0.7	3.0
	1973	1.5	-7.2	0.3	3.9
	1974	2.7	-7.9	4.5	0.5
	1975	1.3	-5.4	-4.6	8.4
	1976	1.4	-8.9	4.7	2.8
	1977	-0.3	-13.6	11.4	2.0
	1978	1.4	-10.0	-2.1	10.4
Ecuador	1980	8.7	-10.3	-3.9	5.2
	1981	8.5	-6.0	-6.0	4.1
	1982	5.5	-8.8	-6.0	10.2
	1983	3.9	-5.9	-0.9	3.5
	1984	0.6	-4.9	0.3	5.4
	1985	3.5	-4.6	1.7	1.3
India	1970	3.4	-0.9	-3.9	1.4
	1971	3.6	-1.2	-4.5	2.1
	1972	4.5	-1.1	-4.9	1.6
	1973	6.2	-1.0	-5.1	-0.1
	1974	3.4	-1.8	-4.3	2.7
	1975	5.3	-1.5	-6.0	2.1
	1976	6.0	-0.2	-5.5	-0.3
	1977	6.4	-1.1	-3.9	-1.4
	1978	6.9	-0.7	-5.1	-1.2
	1979	6.2	-1.0	-6.5	1.3
	1980	6.7	-1.1	-7.4	1.7
	1981	6.2	-1.6	-6.9	2.3
	1982	7.0	-1.8	-7.1	1.9
Indonesia	1982	3.6	-4.8	-6.8	6.0
	1983	1.7	-3.5	-4.0	8.5
	1984	3.2	-4.7	1.2	2.4
	1985	3.4	-3.5	-0.6	2.4
	1986	3.2	-3.8	-4.6	5.7
Korea	1980	5.7	-17.1	1.3	9.4
	1981	7.0	-15.8	0.4	7.6
	1982	9.3	-13.8	0.4	5.7
	1983	5.9	-10.4	1.5	3.4
	1984	6.5	-11.3	1.7	2.8
	1985	7.5	-11.6	1.5	2.1
Malaysia	1980	11.7	3.1	-17.1	1.6
	1985	18.5	-13.8	-8.1	2.4
	1986	20.2	-10.8	-11.5	1.2
Philippines	1983	13.4	-13.8	-7.5	7.1
	1984	0.6	2.6	-4.4	2.7
	1985	13.3	-9.7	1.0	-1.1
Portugal	1977	8.2	-14.5	-4.7	9.5
	1978	12.6	-14.2	-7.1	5.9
	1979	17.8	-13.9	-6.3	1.9
	1981	18.7	-21.7	-11.1	13.1
Thailand	1981	8.4	-8.9	-3.8	7.2
	1982	7.9	-4.6	-5.6	2.7
	1983	4.1	-6.1	-3.5	7.3
Tunisia	1977	1.4	-12.9	1.4	10.1
	1980	1.0	-12.0	6.6	4.3
	1981	2.4	-14.1	4.7	7.0
	1982	2.5	-16.5	4.0	10.0
	1983	2.9	-15.7	3.6	9.2
	1984	2.7	-14.4	3.5	8.1
Turkey	1971	6.7	-6.9	1.0	0.1
	1972	7.1	-9.5	0.7	-0.3
	1973	8.7	-9.2	-0.4	-2.7
	1974	7.2	-12.2	-0.5	2.5
	1975	7.5	-11.8	0.4	5.2
	1976	7.6	-10.3	-4.6	5.4
	1977	9.2	-10.3	-2.5	7.8
	1978	8.2	-9.7	-3.9	3.3
	1979	7.6	-10.1	-3.8	2.8
	1980	5.7	-16.5	2.6	6.5
	1981	9.6	-14.4	1.5	4.3
Yugoslavia	1970	2.7	-10.1	0.6	2.5
	1971	5.6	-8.9	-4.4	2.6
	1972	5.3	-5.9	0.1	-0.7
	1973	5.4	-3.7	0.7	-3.1
	1974	4.1	-6.4	-1.2	3.7
	1975	4.9	-9.5	-0.7	3.2
	1976	5.4	-6.9	0.5	-0.5
	1977	5.0	-10.6	-0.5	4.4
	1978	6.9	-9.0	1.5	1.8
	1979	5.4	-10.8	1.8	5.6
	1980	6.0	-9.0	0.5	3.7
	1981	6.0	-6.7	2.3	0.9
	1982	8.4	-4.1	1.9	0.2
	1983	13.4	-7.4	1.4	-1.0
	1984	11.3	-9.5	3.0	-1.9
	1985	16.5	-13.3	3.6	-2.4

APPENDIX TABLE 2: SECTOR SELF-FINANCING RATIOS, VARIOUS COUNTRIES

		Hholds	Business	Govt
Cameroon	1980	18.72	0.48	0.99
	1981	14.54	0.49	1.22
	1982	9.01	0.46	1.45
	1983	9.20	0.43	2.04
	1984	9.50	0.63	1.60
	Avg	10.16	0.41	1.22
China	1982	2.16	0.91	0.91
	1983	2.20	0.80	0.85
	1984	2.44	0.56	0.98
	1985	2.15	0.50	1.37
	1986	2.33	0.51	1.22
	Avg	2.26	0.63	1.07
Colombia	1970	1.52	0.46	1.00
	1971	1.30	0.47	0.63
	1972	1.58	0.55	0.63
	1973	1.89	0.66	0.52
	1974	1.43	0.49	1.15
	1975	1.42	0.47	2.05
	1976	1.53	0.49	2.31
	1977	2.20	0.54	1.29
	1978	1.80	0.49	1.75
	1979	1.75	0.56	1.73
	1980	1.81	0.54	1.29
	1981	1.64	0.53	0.58
	1982	1.65	0.46	0.34
	1983	1.62	0.55	0.01
	1984	1.75	0.55	0.32
	1985	1.71	0.57	1.10
	1986	1.73	0.70	3.65
	Avg	1.67	0.53	1.20
Cote d'Ivoire	1971	1.66	0.63	0.56
	1972	1.54	0.54	0.81
	1973	1.46	0.43	1.17
	1974	1.53	0.44	1.66
	1975	1.36	0.46	0.49
	1976	1.46	0.16	1.46
	1977	0.86	0.05	2.03
	1978	1.53	0.24	0.90
	Avg	1.42	0.37	1.13
Ecuador	1980	2.42	0.26	0.54
	1981	2.63	0.35	0.47
	1982	1.70	0.26	0.38
	1983	1.84	0.35	0.89
	1984	0.97	0.48	1.19
	1985	1.72	0.49	1.45
	Avg	1.88	0.36	0.70
India	1970	1.39	0.64	0.45
	1971	1.40	0.59	0.40
	1972	1.60	0.59	0.36
	1973	1.74	0.65	0.38
	1974	1.39	0.53	0.47
	1975	1.60	0.49	0.43
	1976	1.61	0.87	0.49
	1977	1.67	0.57	0.54
	1978	1.62	0.72	0.49
	1979	1.60	0.68	0.42
	1980	1.64	0.65	0.33
	1981	1.67	0.54	0.42
	1982	1.79	0.52	0.41
	Avg	1.59	0.62	0.43
Korea	1980	1.52	0.30	1.20
	1981	1.98	0.34	1.32
	1982	3.26	0.42	1.34
	1983	1.84	0.52	1.55
	1984	1.73	0.52	1.47
	Avg	2.07	0.42	1.38
Malaysia	1980	5.00	1.18	-0.42
	1985	6.54	0.20	0.19
	1986	9.31	0.24	-0.03
	Avg	6.95	0.54	-0.08
Phillipines	1983	-5.49	0.28	0.24
	1984	1.08	3.13	0.53
	1985	-3.50	0.07	1.20
	1986	9.28	0.57	0.01
	Avg	0.34	1.01	0.49
Portugal	1977	1.77	0.01	-0.09
	1978	2.13	0.09	-0.70
	1979	2.79	0.09	-0.37
	1980	2.85	0.06	-0.58
	1981	2.72	-0.15	-0.88
	Avg	2.45	0.02	-0.52
Thailand	1981	3.58	0.49	0.17
	1982	3.24	0.65	-0.18
	1983	2.00	0.60	0.14
	Avg	2.94	0.58	0.04
Tunisia	1977	1.31	0.37	1.25
	1980	1.20	0.36	2.43
	1981	1.56	0.34	1.92
	1982	1.60	0.26	1.75
	1983	1.67	0.22	1.67
	1984	1.68	0.26	1.71
	Avg	1.50	0.30	1.79
Turkey	1971	2.95	0.44	1.20
	1972	3.26	0.17	1.19
	1973	3.25	0.26	0.89
	1974	3.20	0.13	0.91
	1975	2.94	0.12	1.07
	1976	2.85	0.25	0.27
	1977	3.27	0.38	0.71
	1978	3.13	0.44	0.41
	1979	2.82	0.25	0.29
	1980	2.12	0.05	1.47
	1981	4.08	0.09	1.26
	Avg	3.08	0.23	0.88
Yugoslavia	1970	1.38	0.65	1.16
	1971	1.86	0.66	0.49
	1972	1.80	0.74	1.03
	1973	1.75	0.84	1.18
	1974	1.57	0.79	0.79
	1975	1.64	0.68	0.88
	1976	1.67	0.74	1.08
	1977	1.71	0.66	0.89
	1978	1.93	0.71	1.32
	1979	1.75	0.67	1.36
	198..	1.82	0.74	1.10
	1981	2.02	0.79	1.58
	1982	2.52	0.86	1.47
	1983	3.32	0.77	1.44
	1984	2.92	0.73	1.98
	1985	4.08	0.64	2.96
	Avg	2.11	0.73	1.29

APPENDIX TABLE 3: SAVING AND INVESTMENT - HOUSEHOLD AND BUSINESS SECTORS
Selected countries

% GNP		INVESTMENT		SAVING	
		Hholds	Busn	Hholds	Busn
Cameroon	1980	0.18	17.53	3.45	8.34
	1981	0.28	21.83	4.05	10.77
	1982	0.46	18.05	4.15	8.34
	1983	0.50	19.20	4.57	8.23
	1984	0.63	16.70	5.95	10.45
China	1982	3.59	19.37	7.76	17.65
	1983	4.64	18.07	10.20	14.52
	1984	6.05	19.30	14.76	10.89
	1985	6.44	26.99	13.82	13.39
	1986	6.92	26.91	16.14	13.81
Colombia	1970	4.79	12.05	7.26	5.56
	1971	4.00	11.95	5.19	5.64
	1972	5.72	9.50	9.01	5.23
	1973	5.50	8.07	10.42	5.29
	1974	6.62	11.48	9.46	5.61
	1975	5.72	8.89	8.11	4.16
	1976	5.28	9.69	8.09	4.76
	1977	4.57	8.95	10.08	4.83
	1978	5.05	9.23	9.08	4.56
	1979	5.39	9.84	9.46	5.50
	1980	5.00	10.01	9.05	5.44
	1981	4.96	10.50	8.14	5.51
	1982	5.05	11.08	8.31	5.08
	1983	5.42	9.75	8.79	5.35
	1984	4.92	10.82	8.63	5.91
	1985	4.40	12.73	7.53	7.21
	1986	4.80	12.93	8.30	9.11
Cote d'Ivoire	1971	3.06	11.52	5.09	7.23
	1972	3.27	11.50	5.03	6.21
	1973	3.07	13.35	4.46	5.83
	1974	3.34	12.48	5.09	5.50
	1975	3.47	9.97	4.73	4.55
	1976	2.98	10.77	4.35	1.84
	1977	2.42	14.46	2.08	0.90
	1978	2.74	13.97	4.19	4.00
Ecuador	1980	5.56	13.85	13.45	3.55
	1981	4.63	10.77	12.17	3.75
	1982	6.06	12.89	10.32	3.35
	1983	3.97	8.54	7.33	3.03
	1984	4.63	9.36	4.50	4.53
India	1970	8.76	2.58	12.19	1.64
	1971	9.08	2.99	12.69	1.75
	1972	7.40	2.80	11.88	1.65
	1973	8.38	2.78	14.54	1.81
	1974	8.89	3.91	12.32	2.08
	1975	8.85	2.90	14.16	1.43
	1976	9.79	1.62	15.79	1.41
	1977	9.56	2.62	15.97	1.49
	1978	11.24	2.30	18.16	1.65
	1979	10.25	3.07	16.42	2.09
	1980	10.53	3.08	17.24	1.99
	1981	9.16	3.50	15.33	1.89
	1982	8.83	3.68	15.81	1.92
Korea	1980	6.09	20.93	9.26	6.20
	1981	4.86	20.49	9.65	6.94
	1982	3.04	19.85	9.94	8.26
	1983	5.56	19.14	10.25	10.04
	1984	7.08	19.47	12.25	10.07
Malaysia	1980	2.92	17.32	14.59	20.43
	1985	3.34	17.27	21.87	3.48
	1986	2.43	14.26	22.61	3.49
Philippines	1983	-2.06	19.04	11.30	5.28
	1984	7.91	1.21	8.51	3.79
	1985	-2.94	10.46	10.31	0.76
	1986	2.85	-16.33	26.44	-9.38
Portugal	1977	10.26	15.76	18.16	0.15
	1978	10.78	16.64	23.02	1.52
	1979	9.60	15.90	26.82	1.45
	1980	9.60	19.12	27.36	1.18
	1981	10.46	19.42	28.48	-2.92
Thailand	1981	3.24	17.27	11.62	8.40
	1982	3.50	13.14	11.36	8.56
	1983	4.11	15.15	8.22	9.04
Tunisia	1977	4.50	20.50	5.90	7.60
	1980	4.90	18.80	5.90	6.80
	1981	4.30	21.50	6.70	7.40
	1982	4.20	22.40	6.70	5.90
	1983	4.30	20.00	7.20	4.30
	1984	4.00	19.40	6.80	5.00
Turkey	1971	3.44	12.38	10.17	5.44
	1972	3.13	11.41	10.20	1.95
	1973	3.85	12.36	12.50	3.17
	1974	3.27	13.92	10.46	1.77
	1975	3.85	13.43	11.34	1.63
	1976	4.10	13.67	11.68	3.35
	1977	4.04	16.69	13.22	6.37
	1978	3.85	17.32	12.06	7.59
	1979	4.18	13.43	11.81	3.29
	1980	5.13	17.39	10.87	0.88
	1981	3.11	15.80	12.70	1.45
Yugoslavia	1970	7.25	28.82	9.98	18.65
	1971	6.50	26.45	12.12	17.51
	1972	6.64	22.25	11.97	16.37
	1973	7.18	22.59	12.58	18.93
	1974	7.17	30.94	11.29	24.53
	1975	7.75	29.52	12.71	20.07
	1976	8.10	26.65	13.52	19.76
	1977	7.00	31.20	11.99	20.59
	1978	7.36	30.80	14.22	21.76
	1979	7.12	33.04	12.47	22.29
	1980	7.34	35.20	13.38	26.14
	1981	5.89	32.07	11.88	25.31
	1982	5.49	29.89	13.85	25.77
	1983	5.76	32.90	19.14	25.46
	1984	5.90	35.48	17.20	25.99
	1985	5.37	36.84	21.90	23.57

APPENDIX TABLE 4: DATA FOR A FEW INDUSTRIAL COUNTRIES

		SECTORAL SURPLUSES (% of GNP)				SELF-FINANCING RATIOS		
		Hhold	Business	Govt	Foreign	Hhold	Business	Govt
France	1980	3.24	-4.95	0.21	1.43	1.40	0.59	1.21
	1981	4.41	-4.22	-1.78	1.50	1.59	0.58	0.49
	1982	4.66	-5.14	-2.72	3.09	1.64	0.52	0.26
	Avg	4.11	-4.77	-1.43	2.01	1.54	0.56	0.65
Italy	1981	13.18	-3.59	-11.94	2.31	2.54	0.57	-1.81
	1982	13.86	-2.81	-12.70	1.59	2.81	0.61	-1.80
	1983	14.70	-2.07	-11.82	-0.22	3.43	0.61	-1.49
	Avg	13.92	-2.82	-12.15	1.23	2.93	0.60	-1.70
Japan	1983	9.14	-4.22	-3.66	-1.77	2.13	0.70	0.54
	1984	8.91	-4.53	-2.09	-2.80	2.20	0.70	0.77
	1985	9.42	-5.43	-0.84	-3.63	2.21	0.69	1.03
	Avg	9.16	-4.73	-2.20	-2.73	2.18	0.70	0.78
United Kingdom	1982	4.65	-0.09	-2.70	-1.23	1.98	0.91	0.04
	1983	3.32	1.35	-3.63	-0.72	1.57	1.10	-0.32
	1984	3.57	1.40	-3.82	0.30	1.60	1.11	-0.44
	Avg	3.84	0.89	-3.38	-0.55	1.72	1.04	-0.24
Average		8.28	-3.73	-3.79	-0.91	2.12	0.70	0.23

FLOW OF FUNDS FOR COMPOSITE COUNTRIES*

	Household			Business			General Government		
	Net	Ass	Liab	Net	Ass	Liab	Net	Ass	Liab
Currency and deposits	7.3	7.3		2.6	2.6			0.6	0.6
Securities	2.4	2.4		-0.8	0.3	1.1	-4.8	0.4	5.2
Equities and stocks	0.1	0.1		-0.5	0.5	1.0	0.4	0.4	
Loans	-3.3		3.4	-6.5	0.3	6.8	-0.7	0.9	1.5
Insurance and pension funds	2.4	2.4		-0.1		0.1			
Trade credit	-0.5		0.5	0.5	1.5	1.0			
Other (incl forex)	0.4	0.4		0.3	0.5	0.2	1.0	1.2	0.1
Total	8.7	12.6	3.9	-4.6	5.7	10.3	-4.0	3.4	7.4

*France, Italy, Japan and United Kingdom.

ANNEX

A1. This part of the annex presents a somewhat technical argument in support of the assertion in the text (Section 3.2) that barriers to international capital mobility can result in serious efficiency losses if the domestic capital market is imperfect.

The underlying argument is displayed in figure A1: panel A displays the domestic supply (S) and demand (D) schedules for loanable funds, as a function of the rate of return to the saver. With a perfectly functioning international capital market defining the world supply price of capital at r_w the use of loanable funds is OF, the net import of capital is EF[51]. This is the efficient outcome against which other situations may be evaluated. If the international capital market is closed, then the outcome is at the intersection of supply and demand curves, leading to the welfare loss shaded in the figure. The second panel proposes some inefficiency in the domestic capital and financial markets having the net effect of impeding the ability of borrowers to pass through the full marginal return of capital to the providers of funds[52]. The inefficiency has the effect of placing a wedge between the return on capital and the return to the saver[53]. The size of the wedge is illustrated by the gap between the demand curve and the "after-wedge" curve, which represent the perceived return to domestic lenders.

If the international capital market is open and, despite the inefficiency of the domestic financial system, is able and willing to provide loanable funds at the world supply price of capital r_w, no welfare loss results from the inability of the domestic financial market to intermediate efficiently. The domestic savers will be able to obtain r_w[54], and the domestic borrowers will borrow at the same rate[55]. (The net borrowing of domestic sectors from abroad would in this case be lower than gross business borrowing). However, if the international capital market is closed, the welfare loss will be much higher than in panel A: expanding to the whole of the shaded area in panel B.

---

51 It is possible that gross borrowing from abroad will exceed EF, with a capital outflow from savers being matched by additional borrowing.

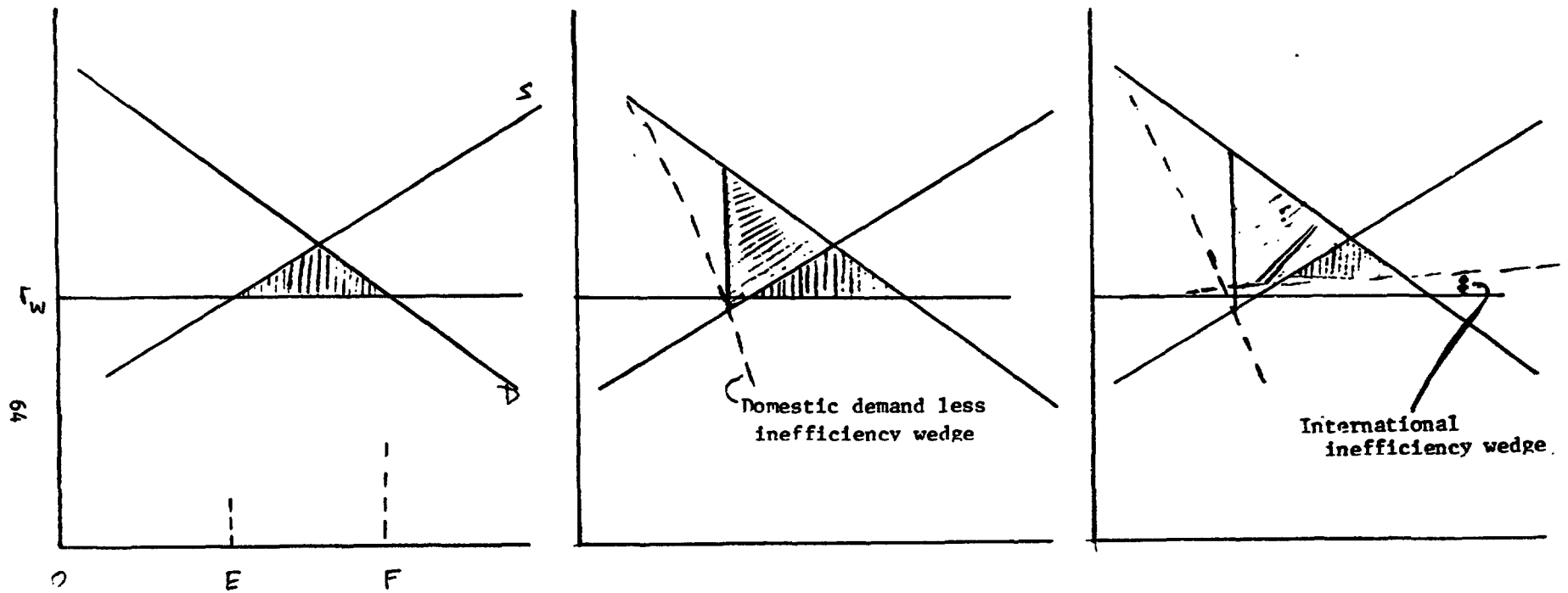
52 Some reasons why the financial markets in developing countries cannot provide the necessary risk diversification are mentioned in Section 3.3.

53 Return should be interpreted here as a summary of a multidimensional concept involving mean return, risk pattern and time-path.

54 Once again the diagrams only reveal the net capital flows. The degree to which the rest of the world provides intermediation services would presumably be greater in this case of a wedge. It has to be recognized that this two-dimensional diagram is attempting to capture a complex multidimensional reality. The exact mix of domestic and foreign financing, equity and bonds or bank borrowing, and so forth, would all need to be determined in a more complete description of the interaction of the various sectoral surpluses.

55 It may reasonably be asked why the foreign sector is modeled as being able to effect a perfect intermediation so that it can provide funds even for projects yielding no more than the world supply price of capital. Of course this is an exaggeration. Panel C shows what may be a more realistic intermediate case where the supply price of loanable funds increases with quantity, reflecting the fact that for some projects it may be difficult even for the foreign sector to provide perfect intermediation. The qualitative arguments remain valid in this case.

FIG. A.1 GAIN FROM REMOVING DISTORTIONS
IN THE MARKET FOR LOANABLE FUNDS



A: Effect of opening international flows (shaded area indicates potential pain)

B: Effect of improving efficiency of domestic financial market

C: Possible inefficiency of international flows

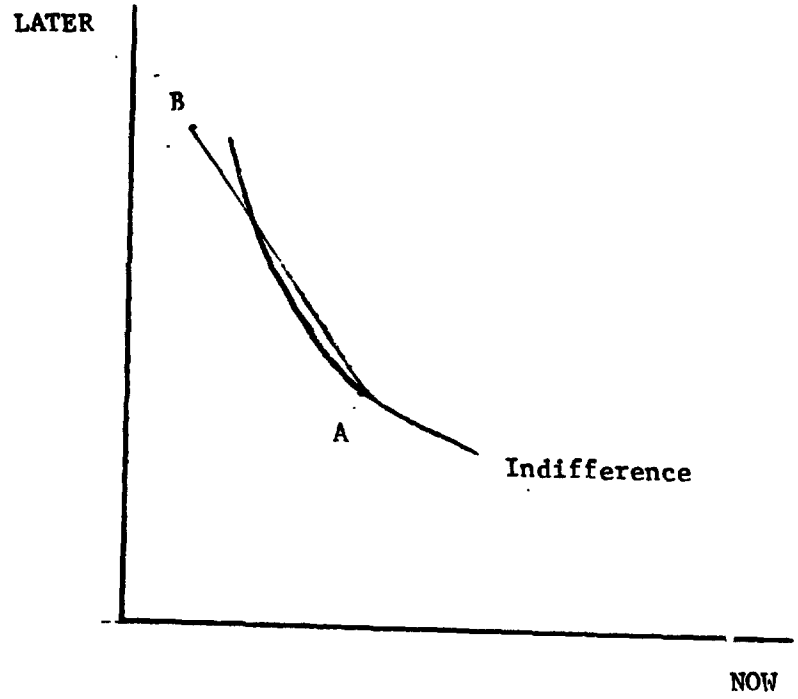
This analysis is based on the assumption that the foreign lenders can escape some of the inefficiency suffered by the domestic financial markets. This could easily be the case as a result of policies such as interest rate controls creating financial repression at home, but not affecting the foreign lender. It could also result from the much greater possibilities of risk diversification and management open to foreign financial institutions.

The analysis suggests both the important role played by foreign intermediation in achieving investment efficiency and the need for policies to improve the efficiency of domestic intermediation when foreign flows do not flow smoothly in response to yield differentials.

A2. This part of the annex illustrates the traditional account of the welfare improvement achieved by financial markets smoothing intertemporal consumption streams. Reference is to figure A2.

A subsistence economy provides a steady but modest flow of consumption to each household allowing it to reach point A in the figure. An investment opportunity is open to one household, which could become an entrepreneur. This investment opportunity absorbs some resources now but yields a return later. As shown by point B in the figure being inside the indifference curve, the net consumption stream made possible by the investment opportunity is too uneven over time to be attractive to the potential entrepreneur. But by incorporating his enterprise, and selling shares, the entrepreneur can achieve some point on the line AB, making him better off, and the purchasers of the shares at least no worse off.

FIG. A.2 GAINS FROM FINANCIAL SHAPING



DATA SOURCES:

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